SOIL SURVEY

Tensas Parish Louisiana

OUR SOIL • OUR STRENGTH

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
Louisiana Agricultural Experiment Station
Issued October 1968

Major fieldwork for this soil survey was done in the period 1957–64. Soil names and descriptions were approved in 1965. Unless otherwise indicated, statements in the publication refer to conditions in the parish in 1964. This survey was made cooperatively by the Soil Conservation Service and the Louisiana Agricultural Experiment Station. The survey was part of the technical assistance furnished to the Tensas-Concordia Soil and Water Conservation District.

HOW TO USE THIS SOIL SURVEY

THIS SOIL SURVEY contains information that can be applied in managing farms and woodlands; in selecting sites for roads, ponds, buildings, or other structures; and in appraising the value of tracts of land for agriculture, industry, or recreation.

Locating Soils

All of the soils of Tensas Parish are shown on the detailed map at the back of this publication. This map consists of many sheets made from aerial photographs. Each sheet is numbered to correspond with numbers shown on the Index to Map Sheets.

On each sheet of the detailed map, soil areas are outlined and are identified by symbol. All areas marked with the same symbol are the same kind of soil. The soil symbol is inside the area if there is enough room; otherwise, it is outside and a pointer shows where the symbol belongs.

Finding and Using Information

The "Guide to Mapping Units" can be used to find information in this publication. This guide lists all of the soils of the parish in alphabetic order by map symbol. It shows the page where each kind of soil is described, and also the page for the capability unit, the woodland group, or any other group in which the soil has been placed.

Individual colored maps showing the relative suitability or limitation of soils for many specific purposes can be developed by using the soil map and information in the text. Interpretations not included in the text can be developed by grouping the soils according to their suitability or limitation for a particular use. Translucent material can be used as an overlay over the soil map and colored to show soils that have the same limitation or suitability. For example, soils that have a slight limitation for a given use can be colored green, those with a moderate limitation can be colored yellow, and those with a severe limitation can be colored red.

Farmers and those who work with farmers can learn about use and management of the soils from descriptions of the soils and from the discussions of the capability groups.

Foresters and others can refer to the section "Woodland," where the soils of the parish are grouped according to their suitability for trees.

Game managers, sportsmen, and others concerned with wildlife will find information about soils and wildlife in the section "Wildlife."

Engineers and builders will find under "Engineering Uses" tables that describe soil properties that affect engineering and show the relative suitability of the soils for specified engineering purposes.

Scientists and others can read about how the soils formed and how they are classified in the section "Formation and Classification of the Soils."

Students, teachers, and others will find information about soils and their management in various parts of the text, depending on their particular interest.

Newcomers in Tensas Parish may be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the section "General Nature of the Parish."

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SOIL SURVEY OF TENSAS PARISH, LOUISIANA

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UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, IN COOPERATION WITH THE LOUISIANA AGRICULTURAL EXPERIMENT STATION

TENSAS PARISH is in the northeastern part of Louisiana (fig. 1). It has a total area of 413,440 acres, of which 20,805 acres are lakes, bayous, and rivers. The northern part of the parish is drained by Bayou Vidal; the central part by Bieler and Clark Bayous and the Big and Little Choctaw Bayous; and the western part by the Tensas River. St. Joseph, the parish seat, is in the southern part of the parish. The climate is warm and temperate. Summers are hot and humid. Winters are mild.

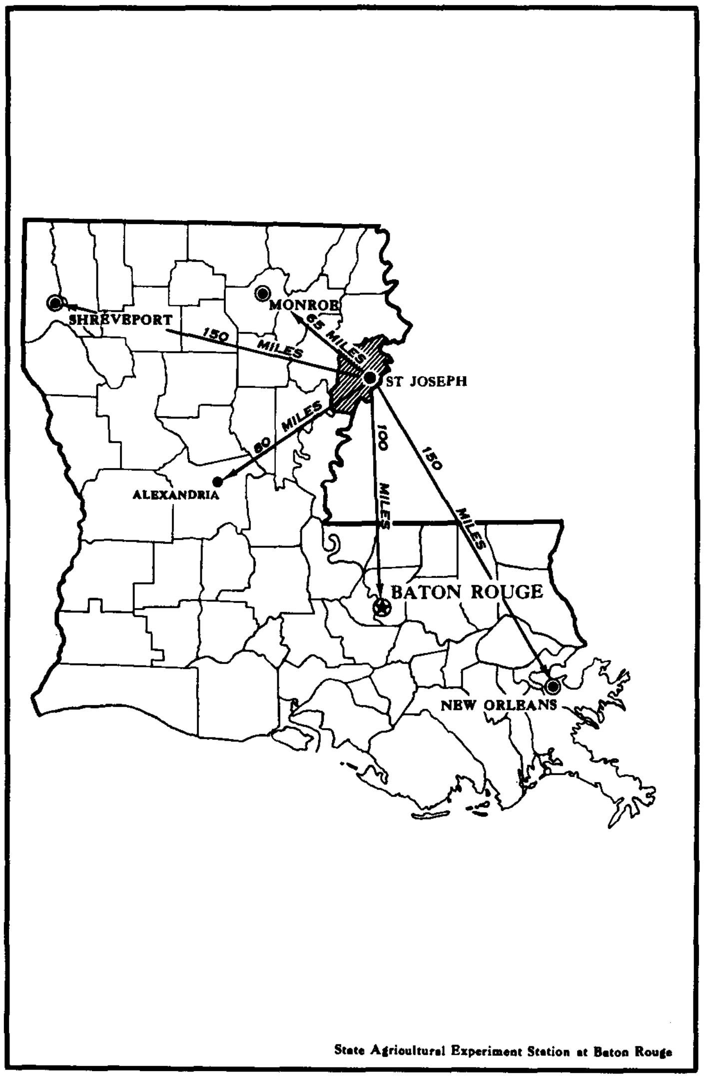

Figure 1.—Location of Tensas Parish in Louisiana.

The soils formed in alluvium deposited by the Mississippi River and range from loamy sand to clay in texture. They are level to undulating. Most of the parish is undulating.

Tensas Parish is mainly a farming area. For many years the main crops have been cotton, corn, soybeans, and small grain. Pecans are grown as a supplemental source of income, but few truck crops or other specialty crops are grown. In recent years the parish has become one of the leaders in beef cattle production; practically every plantation has a high-grade herd. About 62 percent of the parish is hardwood forest. Each year part of the woodland acreage is cleared for crops and pasture.

The parish supports one of the largest populations of white-tailed deer in the State, and much of the woodland is leased by hunting clubs. Lake Bruin and Lake St. Joseph offer many opportunities for boating, fishing, and other aquatic sports. Areas bordering the lakes are being developed for these purposes.

How This Survey Was Made

Soil scientists made this survey to learn what kinds of soils are in Tensas Parish, where they are located, and how they can be used.

They went into the parish knowing they likely would find many soils they had already seen, and perhaps some they had not. As they traveled over the parish, they observed steepness, length, and shape of slopes; size of streams; kinds of native plants or crops; and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material that has not been changed much by leaching or by roots.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in parishes nearby and in places more distant. They classified and named the soils according to nationwide, uniform procedures. To use this publication efficiently, it is necessary to know the kinds of groupings most used in a local soil classification.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, the major horizons of all the soils of one series are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Commerce and Sharkey, for example, are the names of two soil series. All the soils in the United States having the same series name are essentially alike in those characteristics that affect their behavior in the natural, undisturbed landscape. Soils of one series can differ somewhat in texture of the surface soil and in slope, stoniness, or some other characteristic that affects use of the soils by man.

Many soil series contain soils that differ in the texture of their surface layer. According to such differences in texture, separations called soil types are made. Within a series, all the soils having a surface layer of the same texture belong to one soil type. Commerce silt loam and Commerce silty clay loam are two soil types in the Commerce series. The difference in the texture of their surface layers is apparent from their names.

Some soil types vary so much in slope, degree of erosion, number and size of stones, or some other feature affecting their use, that practical suggestions about their management could not be made if they were shown on the soil map as one unit. Such soil types are divided into soil phases. The name of a soil phase indicates a feature that affects management. For example, Commerce silt loam, 0 to 1 percent slopes, is one of two phases of a soil type that has a slope range of 0 to 3 percent.

After a guide for classifying and naming the soils had been worked out, the soil scientists drew soil boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, trees, and other details that help in drawing boundaries accurately. The soil map in the back of this publication was prepared from the aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning management of farms and fields, a mapping unit is nearly equivalent to a soil type or a phase of a soil type. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some other kind that have been seen within an area that is dominantly of a recognized soil type or soil phase.

In preparing some detailed maps, the soil scientists have a problem of delineating areas where different kinds of soils are so intricately mixed or occur in such small individual tracts that it is not practical to show them separately on the map. They show this mixture of soils as one mapping unit and call it a soil complex. Ordinarily, a soil complex is named for the major kinds of soils in it, for example, Bruin-Mhoon complex, gently undulating.

Another kind of mapping unit is the undifferentiated group, which consists of two or more soils that may occur together without regularity in pattern or relative proportion. The individual tracts of the component soils could be shown separately on the map, but the differences between the soils are so slight that the separation is not important for the objectives of the soil survey. An example is Clayey alluvial land and Sharkey clay, overflow, 0 to 5 percent slopes.

In most areas surveyed there are tracts in which the soil material is so rocky, so shallow, or so frequently worked by wind or water that it cannot be classified by soil series. These tracts are shown on the soil map like other mapping units, but they are given descriptive names and are called land types rather than soils. In this parish, for example, soil affected by salt water and by oily liquids from oil and gas wells is called "Oil-waste land."

While a soil survey is in progress, samples of soil are taken, as needed, for laboratory measurements and for engineering tests. Laboratory data from the same kinds of soils in other places are assembled. Data on yields of crops under defined practices are assembled from farm records and from field and plot experiments on the same kinds of soils. Yields under defined management are estimated for all the soils.

But only part of a soil survey is done when the soils have been named, described, and delineated on the map, and the laboratory data and yield data have been assembled. The mass of detailed information then needs to be organized in such a way that it is readily useful to different groups of readers, among them farmers, ranchers, managers of woodland, engineers, and homeowners. Grouping soils that are similar in suitability for each specified use is the method of organization commonly used in soil surveys. The soil scientists set up trial groups, based on the yield and practice tables and other data. They test these groups by further study and by consultation with farmers, agronomists, engineers, and others; then they adjust the groups according to the results of their studies and consultation. Thus, the groups that are finally evolved reflect up-to-date knowledge of the soils and their behavior under present methods of use and management.

General Soil Map

The general soil map in this publication shows, in color, the soil associations in Tensas Parish. A soil association is a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil, and it is named for the major soils. The soils in one association may occur in another, but in a different pattern.

A map showing soil associations is useful to people who want a general idea of the soils in the parish, who want to compare different parts of the parish, or who want to know the location of large tracts that are suitable for a certain kind of farming or other land use. Such a map is not suitable for planning the management of a farm or field, because the soils in any one association ordinarily differ in slope, depth, stoniness, drainage, and other characteristics that affect management.

The nine soil associations in Tensas Parish are described in the paragraphs that follow.

1. Tensas-Alligator association

Clayey, acid soils on ridges and in swales

This association is characterized by low parallel ridges and swales formed by the meandering of the Mississippi River. The swales are 500 feet to several miles long and 50 to 300 feet wide. The ridges are 1 to 8 feet higher than

the swales, are slightly rounded, and are 100 to 400 feet wide. This association makes up 25 percent of the parish.

Tensas soils, which make up about 50 percent of the association, are on the crests and the upper slopes of the ridges. Their uppermost layers are clay and silty clay loam. At a depth of 15 to 30 inches are layers of slightly acid to very strongly acid silt loam, very fine sandy loam, or silty clay loam.

Alligator soils, which make up about 30 percent of the association, are on the lower slopes of the ridges and in the swales. They are poorly drained clays that are very slowly permeable to a depth of 42 inches or more and are medium acid to very strongly acid.

Also included in this association are minor areas of Dundee soils, which are on the crests of the ridges, and minor areas of Sharkey soils, which are in the swales.

About 60 percent of this association is woodland. About 25 percent is used for cultivated crops and pasture. Cotton, soybeans, wheat, oats, and pasture grasses are the main crops. Most of the farms are of the type operated by the owner and his family. The main sources of income are cultivated crops, beef cattle, and dairy products. Most of the woodland is owned by large lumber companies.

2. *Bruin-Robinsonville-Crevasse association*

Loamy and sandy soils on ridges and in swales

This association is characterized by parallel ridges and swales formed by the meandering of the Mississippi River. The swales are 25 to 150 feet wide. The ridges are 1 to 5 feet higher than the swales and are 100 to 200 feet wide. This association makes up 2 percent of the parish. It is in the east-central part.

Bruin soils, which make up about 45 percent of the association, are on the upper slopes of the ridges. They are moderately well drained, moderately permeable silt loams.

Robinsonville soils, which make up about 25 percent of the association, are on the crests of the ridges. They are well-drained, moderately permeable very fine sandy loams.

Crevasse soils, which make up about 14 percent of the association, occur as narrow areas on the crests of the ridges. They are sandy, rapidly permeable, and droughty.

Also included in this association are small areas of Commerce soils, which are on the lower slopes of the ridges, and small areas of Mhoon, Tunica, and Sharkey soils, which are in the swales.

About 96 percent of this association is used for cultivated crops and pasture. Cotton, soybeans, wheat, oats, and pasture grasses are the main crops. Most of the farms are of the type operated by the owner. The main sources of income are cultivated crops and beef cattle. Much of the association is in large land holdings of 800 acres or more. The rest is in smaller holdings of 100 acres or less.

3. *Alluvial land-Sharkey association*

Clayey, loamy, and sandy deposits subject to overflow, behind the Mississippi levee

This association is subject to periodic overflow, deposition, scouring, and streambank cutting. It occurs east of the Mississippi River and between the Mississippi River and its levees. It makes up about 10 percent of the parish.

Clayey alluvial land and Sharkey clay, which together make up about 75 percent of this association, are in depressions. Crevasse fine sand makes up about 13 percent of the association, and Loamy alluvial land about 12 percent. Also included are spots of Robinsonville very fine sandy loam.

Most of this association is woodland. The rest is used for pasture and hay.

4. *Newellton-Sharkey association*

Clayey, alkaline soils on ridges and in swales

This association is characterized by low ridges and swales that formed in clay deposited by the meandering Mississippi River. The swales are long and 20 to 200 feet wide. The ridges are 1 to 5 feet higher than the swales and are 100 to 300 feet wide. This association makes up about 4 percent of the parish. Most of it is in the northeastern part.

Newellton soils, which make up about 55 percent of the association, are on the crests and the uppermost slopes of the ridges. They are somewhat poorly drained and slowly permeable. Their surface layer is slightly acid or neutral clay. It is underlain by moderately alkaline, loamy material at a depth of 10 to 20 inches.

Sharkey soils, which make up about 33 percent of the association, are in the swales. They are poorly drained and very slowly permeable. Their surface layer is slightly acid or neutral clay. It is underlain by layers of clay or silty clay to a depth of 42 inches or more.

Also included in this association are spots of Tunica soils, which are on the lower slopes of the ridges, and spots of Commerce silty clay loam and Newellton silty clay loam, which are on the crests of the ridges.

About 75 percent of this association is used for cultivated crops and pasture. Cotton, soybeans, wheat, oats, and pasture grasses are the main crops. Most of the farms are of the type operated by the owner. The main sources of income are cultivated crops, beef cattle, and sheep. About 20 percent of the association is woodland.

5. *Commerce-Bruin-Robinsonville association*

Loamy soils on natural levees

This association occupies the natural levees of the Mississippi River and its recently abandoned channels. Most of it is along Lake St. Joseph and Lake Bruin, in the eastern part of the parish. It makes up about 6 percent of the parish.

Commerce soils, which make up about 45 percent of the association, are somewhat poorly drained and moderately permeable. Their surface layer is medium acid to neutral silt loam and silty clay loam, and their subsoil is neutral to moderately alkaline silt loam and silty clay loam.

Bruin soils, which make up about 35 percent of the association, are on some of the higher parts of the natural levees, at elevations above Commerce soils. They are moderately well drained and moderately permeable. Their surface layer is slightly acid or neutral silt loam. Their subsoil is slightly acid to moderately alkaline.

Robinsonville soils, which make up about 10 percent of the association, are on the crests of narrow ridges on the natural levees. The ridges are slightly rounded and 1 to 5 feet high. Few of these are more than 200 feet wide. Robinsonville soils are well drained and moderately per-

meable. Their surface layer and subsoil are slightly acid or neutral very fine sandy loam.

This association also includes minor areas of Mhoon, Newellton, Tunica, and Sharkey soils.

This association contains some of the most productive soils in the parish. About 96 percent of it is used for cultivated crops and pasture. Cotton, corn, soybeans, wheat, oats, and pasture grasses are the main crops. Most of the farms are 300 acres or more in size. The main sources of income are cultivated crops and beef cattle.

6. *Tensas-Dundee-Alligator association*

Clayey and loamy soils along natural levees

This association is characterized by natural levees, ridges, and swales that formed in clayey and silty material deposited by the meandering Mississippi River. Most of it occurs along the natural levees of the Choctaw, Muddy, and Van Buren Bayous in the southern part of the parish. This association makes up about 12 percent of the parish.

Tensas soils, which make up about 40 percent of the association, are on the lower parts of the natural levees and on the ridges. They are poorly drained, very slowly permeable, and slightly acid to very strongly acid. Their surface layer is clay, silty clay, or silty clay loam, and their subsoil is clay. These soils are underlain by loamy material at a depth of 15 to 30 inches.

Dundee soils, which make up about 30 percent of the association, are on the higher parts of the natural levees and on the crests of the ridges. They are somewhat poorly drained. Their surface layer is silt loam or silty clay loam, and their subsoil is slightly acid to very strongly acid, moderately slowly permeable clay loam.

Alligator soils, which make up about 20 percent of the association, are on broad, level areas and in the swales. They are clay to a depth of 42 inches or more, are poorly drained, and are very slowly permeable. The texture of the surface layer ranges from silt loam to clay.

Also included in this association are small areas of Sharkey and Goldman soils.

Most of this association is used for cultivated crops and pasture. Soybeans, wheat, oats, cotton, and corn are the main crops. The farms range from small units operated by the family to large plantations. The main sources of income are cultivated crops, beef cattle, and dairy products.

7. *Dundee-Tensas-Goldman association*

Loamy and clayey, acid soils on ridges and in swales

This association is characterized by ridges and swales that formed in sandy and clayey material deposited by the meandering Mississippi River. The swales are long and are 50 to 200 feet wide. The ridges are 1 to 8 feet higher than the swales, are slightly rounded, and are 100 to 250 feet wide. This association makes up about 3 percent of the parish. It is in the central and southwestern parts.

Dundee soils, which make up about 40 percent of the association, are predominantly on the uppermost slopes of the ridges. They are somewhat poorly drained and moderately slowly permeable. Their surface layer is silt loam or silty clay loam. Their subsoil is slightly acid to very strongly acid clay loam.

Tensas soils, which make up about 30 percent of the association, are in the swales and on the lower slopes of the ridges. They are poorly drained, very slowly permeable, and slightly acid to very strongly acid. The uppermost layers are clay or silty clay loam. These soils are underlain by loamy material at a depth of 15 to 30 inches.

Goldman soils, which make up about 20 percent of the association, are on the crests and the uppermost slopes of the ridges. They are moderately well drained and moderately rapidly permeable. Their surface layer is very fine sandy loam, and the subsoil is medium acid to very strongly acid loam. These soils are more droughty than Dundee and Tensas soils.

Also included in this association are small areas of Alligator and Sharkey soils, which are in the swales.

About 80 percent of this association is used for cultivated crops and pasture. Cotton, soybeans, wheat, oats, and pasture grasses are the main crops. The farms range in size from small units operated by the family to large plantations. About 15 percent of the association is woodland.

8. *Sharkey-Alligator-Tunica association*

Clayey soils in broad, level areas

This association is characterized by broad, low, level areas on the flood plain, where floodwater moved very slowly and deposited fine sediments, mainly clay. The larger areas are 1 to 6 miles wide and 3 to 12 miles long. This association occurs throughout the parish. It makes up 35 percent of the parish.

Sharkey clay, which makes up about 65 percent of the association, is dark gray and poorly drained. Its subsoil is very slowly permeable, slightly acid to moderately alkaline clay.

Alligator clay, which makes up 20 percent of the association, is gray and poorly drained. Its subsoil is very slowly permeable, medium acid to very strongly acid clay.

Tunica clay, which makes up 10 percent of the association, is dark gray, poorly drained, and slowly permeable. It is underlain by loamy material at a depth of 20 to 30 inches.

Also included in this association are small areas of Dundee and Tensas soils.

Most of this association is woodland. The rest is used for cultivated crops and pasture. Cotton, soybeans, rice, and pasture grasses are the main crops. The farms range from small units operated by the family to large plantations. The main sources of income are wood crops, cultivated crops, beef cattle, dairy cattle, and sheep.

9. *Newellton-Commerce-Tunica association*

Clayey and loamy, alkaline soils on ridges and in swales

This association is characterized by low parallel ridges and swales formed by the meandering of the Mississippi River. The swales are long and are 25 to 100 feet wide. The ridges are 1 to 5 feet higher than the swales, are slightly rounded, and are 50 to 200 feet wide. This association makes up about 3 percent of the parish. It occurs in the northeastern part.

Newellton soils, which make up 40 percent of the association, are predominantly on the uppermost slopes of the ridges but are also in the swales. They are somewhat poorly drained and are slowly permeable. Their surface layer is clay, and they have loamy material at a depth of 10 to 20 inches.

Commerce soils, which make up 25 percent of the association, are on the crests of the ridges and are somewhat poorly drained.

Tunica soils, which make up 20 percent of the association, are on the lower slopes of the ridges and in the swales. They are similar to Newellton soils, except that they are poorly drained and have loamy material at a depth of 20 to 30 inches.

Also included in this association are areas of Bruin and Robinsonville soils, which are on the crests of the ridges, and Sharkey soils, which are in the swales.

Most of this association is used for cultivated crops and pasture. Cotton, soybeans, corn, wheat, oats, and pasture grasses are the main crops. A large part of the association is in farms of 300 acres or more. Most farms are operated by the owner. The main sources of income are cultivated crops, beef cattle, and sheep.

Descriptions of the Soils

This section describes the soil series and mapping units of Tensas Parish. The approximate acreage and the proportionate extent of each mapping unit are given in table 1.

A general description of each soil series is given, and this is followed by brief descriptions of the mapping units in that series. Thus, for full information on any one mapping unit, it is necessary to read the description of the soil series as well as the description of the mapping unit.

Following the name of each mapping unit is a symbol in parentheses. This symbol identifies the mapping unit on the detailed soil map. Listed at the end of the description of each mapping unit are the capability unit, the woodland group, and the wildlife group in which the mapping unit has been placed. The page on which each capability unit is described can be found readily by referring to the "Guide to Mapping Units." The woodland and wildlife classifications for each soil can also be found by referring to the "Guide to Mapping Units." The woodland and wildlife groups are described in tables 3 and 7 in the sections "Woodland" and "Wildlife." Many terms used in the soil descriptions and other sections of the publication are defined in the Glossary.

Alligator Series

Soils of the Alligator series are poorly drained (fig. 2). They formed in fine-textured alluvium deposited by the Mississippi River. They occur in low areas in the western part of the parish. Typically, the surface layer is dark-gray clay. It is underlain by several feet of gray clay mottled with yellowish brown and strong brown.

Alligator soils are associated with Dundee, Tensas, and Sharkey soils. They are more poorly drained and finer textured than Dundee soils. They lack the layers of silt loam, very fine sandy loam, or silty clay loam that are typical of Tensas soils. They are lighter colored and more acid than Sharkey soils.

The following profile of Alligator clay is on a broad flat 50 feet north of State Highway 566 and 6 miles west of Waterproof, SW¼NE¼ sec. 31, T. 10 N., R. 10 E.

A11—0 to 1 inch, very dark gray (10YR 3/1) silty clay; weak, fine, granular structure; firm; many fine roots; few partially decayed leaves; very strongly acid; gradual, smooth boundary.

A12—1 to 6 inches, gray (10YR 5/1) clay; common, fine, faint, dark yellowish-brown (10YR 4/4) mottles and few, fine, distinct, yellowish-brown (10YR 5/6) mottles; moderate, medium, subangular blockly structure; firm;

TABLE 1.—*Approximate acreage and proportionate extent of the soils*

Soil	Area	Extent	Soil	Area	Extent
	Acres	*Percent*		*Acres*	*Percent*
Alligator clay, 0 to 1 percent slopes	30, 554	7. 4	Newellton clay, 0 to 1 percent slopes	2, 748	. 7
Alligator clay, gently undulating	2, 700	. 7	Newellton silty clay loam, 1 to 3 percent slopes	407	. 1
Alligator clay, undulating	583	. 1	Newellton clay, 1 to 5 percent slopes	1, 612	. 4
Bruin silt loam, 0 to 1 percent slopes	6, 557	1. 6	Newellton-Mhoon silty clay loams, gently undulating	1, 522	. 4
Bruin silt loam, 1 to 3 percent slopes	803	. 2	Newellton-Commerce-Tunica complex, undulating	3, 505	. 8
Bruin-Mhoon complex, gently undulating	5, 234	1. 3	Newellton-Sharkey clays, undulating	14, 693	3. 6
Bruin-Robinsonville-Crevasse complex, undulating	1, 014	. 2	Oil-waste land	506	. 1
Clayey alluvial land and Sharkey clay, overflow, 0 to 5 percent slopes	29, 080	7. 0	Robinsonville very fine sandy loam, 1 to 5 percent slopes	405	. 1
Commerce silt loam, 0 to 1 percent slopes	10, 000	2. 4	Sharkey clay	93, 817	22. 7
Commerce silt loam, 1 to 3 percent slopes	823	. 2	Sharkey silty clay loam	1, 387	. 3
Commerce silty clay loam, 0 to 1 percent slopes	2, 456	. 6	Sharkey silt loam	811	. 2
Commerce silty clay loam, gently undulating	1, 409	. 3	Sharkey clay, overflow	8, 200	2. 0
Crevasse fine sand, 0 to 8 percent slopes	1, 745	. 4	Tensas silty clay	1, 959	. 5
Crevasse fine sand, overflow, 0 to 8 percent slopes	4, 808	1. 2	Tensas silty clay loam	2, 566	. 6
Dundee silt loam	4, 136	1. 0	Tensas-Alligator clays, gently undulating	61, 494	14. 9
Dundee silty clay loam	3, 611	. 9	Tensas-Alligator clays, undulating	34, 659	8. 4
Dundee-Tensas-Goldman complex, gently undulating	1, 542	. 4	Tensas-Alligator-Dundee complex, gently undulating	26, 231	6. 3
Dundee-Goldman-Tensas complex, undulating	8, 919	2. 2	Tensas-Alligator-Dundee complex, undulating	7, 655	1. 8
Loamy alluvial land and Robinsonville soils, overflow, 0 to 5 percent slopes	5, 428	1. 3	Tunica clay	3, 284	. 8
Mhoon silt loam	12	(1)	Water	20, 805	5. 0
Mhoon silty clay loam	3, 760	. 9	Total	413, 440	100. 0

[1] Less than 0.05 percent.

Figure 2.—**Water standing on Alligator clay after heavy rain.**

many fine roots; few very fine pores in peds; very strongly acid; gradual, smooth boundary.

AC—6 to 13 inches, clay; gray (10YR 5/1) on ped surfaces; grayish brown (10YR 5/2) with common, fine, faint, dark yellowish-brown (10YR 4/4) and few yellowish-brown (10YR 5/6) mottles inside peds; strong, medium and fine, angular blocky structure; firm; many fine roots; few pores in peds; very strongly acid; clear, smooth boundary.

C1—13 to 20 inches, gray (10YR 5/1) clay; common, fine, distinct, yellowish-brown (10YR 5/6) mottles; moderate, medium, subangular blocky structure; firm; few fine roots; strongly acid; gradual, smooth boundary.

C2—20 to 30 inches, gray (10YR 5/1) clay; common, fine, faint, dark yellowish-brown (10YR 4/4) mottles and few yellowish-brown (10YR 5/6) mottles; moderate, fine, subangular blocky structure; very firm; few small slickensides 1 inch to 2½ inches in diameter; few, fine, dark concretions; few fine roots; strongly acid; gradual, smooth boundary.

C3—30 to 42 inches, gray (10YR 5/1) clay; many, fine, faint, dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; very firm; prominent slickensides 3 to 6 inches in diameter, on a 45 degree angle; very few roots; few, fine, dark concretions; strongly acid; gradual, smooth boundary.

C4—42 to 54 inches, gray (10YR 5/1) clay; common, fine, faint, dark yellowish-brown (10YR 4/4) mottles and few, fine, distinct, strong-brown (7.5YR 5/6) mottles; weak, medium, subangular blocky structure; very firm; few slickensides 3 to 6 inches in diameter, on about a 30 degree angle; few dark concretions; very few roots; neutral; gradual, smooth boundary.

C5—54 to 60 inches, gray (10YR 5/1) clay; common, fine, distinct, strong-brown (7.5YR 5/6) mottles; moderate, medium, subangular blocky structure; few fine concretions; calcareous; moderately alkaline.

The A horizon is silty clay or clay in texture. It ranges from very dark gray (10YR 3/1) to gray (10YR 5/1) in color, from very strongly acid to slightly acid or neutral in reaction, and from 3 to 6 inches in thickness. The very dark gray (10YR 3/1) layer is less than 3 inches thick. The AC horizon is silty clay or clay. It is gray (10YR 5/1) and is mottled dominantly with dark yellowish brown (10YR 4/4), yellowish brown (10YR 5/6), and grayish brown (10YR 5/2). It ranges from very strongly acid to medium acid in reaction. The C horizon is dominantly gray (10YR 5/1) in color but in places contains layers of dark gray (10YR 4/1). It ranges from very strongly acid to medium acid to a depth of 42 inches and from medium acid to moderately alkaline below that depth. This horizon is silty clay or clay in texture. Mottles are dark yellowish brown (10YR 4/4), yellowish brown (10YR 5/6), and strong brown (7.5YR 5/6). Slickensides are present but are difficult to identify if the soil is wet.

Alligator clay, 0 to 1 percent slopes (AcA).—This soil is poorly drained. It occurs mainly on wide flats and in narrow depressions, at some of the lowest elevations in the parish. The surface layer is ordinarily dark gray and is approximately 6 inches thick. It is underlain by gray silty clay or clay mottled with yellowish brown and dark yellowish brown. Included in mapping were areas less than 50 feet wide of very dark gray clay, areas where the slope is up to 3 percent, and small areas of Sharkey clay and Tensas silty clay.

This soil can be worked within only a narrow range of moisture content. It cracks when dry and seals over when wet. It becomes cloddy when worked, and seedbed preparation is difficult. The soil is low in nitrogen and low to moderate in phosphorus and potassium. It is very strongly acid to medium acid in the root zone. Runoff is medium, and permeability is very slow. The available water capacity is moderate.

This soil can be used for most of the common crops, but it is not well suited to cotton, corn, and Coastal bermudagrass. Most of the acreage is woodland. The rest is in cultivated crops and pasture. Cropland and pasture need drainage. (Capability unit IIIw-2; woodland group 6; wildlife group 3)

Alligator clay, gently undulating (AgB).—This soil is gray clay or silty clay to a depth of 42 inches or more. It is poorly drained. It occupies low parallel ridges and swales, mainly in the western parts of the parish. The swales, which make up about 25 percent of the acreage, generally are wet during winter and early in spring. Few of these are more than 100 feet wide. The ridges, which make up about 65 percent of the acreage, are 1 to 3 feet high and are somewhat better drained than the swales. Few are more than 200 feet wide. Included in mapping were small areas of Sharkey and Tensas soils and small areas of Dundee silty clay loam.

The soil texture, the wetness, and the irregular slopes make management difficult. This soil cracks when dry and seals over when wet. It can be worked within only a narrow range of moisture content. It becomes cloddy when worked, and seedbed preparation is difficult. The soil is low in nitrogen and low to moderate in phosphorus and potassium. It is very strongly acid to medium acid in the root zone. Runoff is slow in the swales and medium on the ridges. Permeability is very slow. The available water capacity is moderate.

This soil can be used for most of the common crops if the swales are drained, but it is not well suited to corn, cotton, and Coastal bermudagrass. Approximately half

the acreage is used for cultivated crops and pasture. (Capability unit IIIw-5; woodland group 6; wildlife group 4)

Alligator clay, undulating (AgD).—This soil is gray clay or silty clay to a depth of 42 inches or more. It occupies parallel ridges and swales, mainly in the northeastern and southwestern parts of the parish. The swales, which make up about 40 percent of the acreage, are wet, or in some years they are covered with water during winter and early in spring. They are typically less than 150 feet wide. The ridges, which make up about 60 percent of the acreage, are 3 to 8 feet high and are somewhat better drained than the swales. Few of these are more than 250 feet wide. Included in mapping were small areas of Sharkey clay in the swales, and areas of Dundee silty clay loam and Tensas clay on some of the highest ridges.

The soil texture, the wetness, and the irregular slopes make management difficult. This soil cracks when dry and seals over when wet. It can be worked within only a narrow range of moisture content. It becomes cloddy when worked, and seedbed preparation is difficult. The soil is low in nitrogen and low to moderate in phosphorus and potassium. It is very strongly acid to medium acid in the root zone. Runoff is slow in the swales and medium on the ridges. Permeability is very slow. The available moisture capacity is moderate.

This soil can be used for most of the common crops if the swales are drained, but it is not well suited to cotton, corn, and Coastal bermudagrass.

Most of the acreage is woodland. The rest is used for cultivated crops. (Capability unit IIIw-5; woodland group 6; wildlife group 4)

Bruin Series

Soils of the Bruin series are moderately well drained. They formed in silty sediments deposited by the Mississippi River. They occur on the highest parts of the natural levees along Lake Bruin, Lake St. Joseph, and the Mississippi River. The surface layer is dark grayish-brown, gritty silt loam. The subsoil is dark-brown, gritty silt loam. It is underlain by brown very fine sandy loam.

Bruin soils are associated with Commerce, Crevasse, Robinsonville, Mhoon, Newellton, and Sharkey soils. They are better drained than Commerce soils and lack the silty clay loam or clay loam layers that are typical of those soils. They have a lower content of sand than Crevasse soils. They have mottles throughout the subsoil and substratum, in comparison with Robinsonville soils, which are mottle free to a depth of about 50 inches. They lack the clay layers that are typical of Mhoon, Newellton, and Sharkey soils.

The following profile of Bruin silt loam is on the natural levee along Lake St. Joseph, 2½ miles southeast of the intersection of State Highways 4 and 605 in Newellton, 1,200 feet southwest of State Highway 605, 2,500 feet northwest of intersection of State Highways 605 and 608, and 200 feet east of field road in sec. 17, T. 12 N., R. 12 E.

Ap—0 to 7 inches, dark grayish-brown (10YR 4/2), gritty silt loam; weak, very fine, granular structure in uppermost 5 inches; weak, thick, platy structure between 5 and 7 inches; friable; many fine roots; neutral; gradual, smooth boundary.

A12—7 to 10 inches, dark grayish-brown (10YR 4/2), gritty silt loam with thin lenses of loam; weak, coarse, subangular blocky structure; friable; many fine roots; slightly acid; gradual, smooth boundary.

B2—10 to 18 inches, dark-brown (10YR 4/3), gritty silt loam; common, fine, faint, dark grayish-brown (10YR 4/2) mottles and few, fine, faint, grayish-brown (10YR 5/2) mottles; moderate, medium, subangular blocky structure; friable; few fine pores in peds; many fine roots; slightly acid; abrupt, smooth boundary.

B3—18 to 24 inches, dark-brown (10YR 4/3), gritty silt loam; common, fine, faint, dark grayish-brown (10YR 4/2) and grayish-brown (10YR 5/2) mottles; few, fine, faint, yellowish-brown (10YR 5/4) mottles in lower part of horizon; weak, medium, subangular blocky structure; friable; many fine pores in peds; few fine roots; slightly acid; gradual, smooth boundary.

C1—24 to 34 inches, brown (10YR 5/3), gritty silt loam; common, fine, faint, grayish-brown (10YR 5/2) and dark grayish-brown (10YR 4/2) mottles; weak, very fine, platy structure in upper part and weak, coarse, platy structure in lower part; friable; few fine pores in peds; few fine roots; slightly acid; abrupt, smooth boundary.

C2—34 to 46 inches, brown (10YR 5/3) very fine sandy loam; common, fine, faint, light brownish-gray (10YR 6/2), dark yellowish-brown (10YR 4/4), and yellowish-brown (10YR 5/4) mottles; weak, very fine and fine, platy structure; friable; many fine pores in peds; few fine roots; mildly alkaline; abrupt, smooth boundary.

C3—46 to 54 inches, dark-gray (10YR 4/1) silty clay loam; common, fine, faint, yellowish-brown (10YR 5/6) mottles and few, fine, faint, dark grayish-brown (10YR 4/2) mottles; moderate, medium, subangular blocky structure; moderately alkaline; gradual, smooth boundary.

C4—54 to 60 inches, grayish-brown (10YR 5/2) very fine sandy loam; common, fine, faint, dark yellowish-brown (10YR 4/4) mottles and few, fine, faint, gray (10YR 5/1) mottles; few root channels filled with dark-gray silty clay loam; weak, subangular blocky structure; friable; very few roots; moderately alkaline.

The A horizon ranges from dark grayish brown (10YR 4/2) to dark brown (10YR 4/3) in color and from 5 to 12 inches in thickness. It is silt loam or loam in texture and slightly acid or neutral in reaction. The B horizon ranges from dark brown (10YR 4/3) to brown (10YR 5/3) in color, from slightly acid to mildly alkaline in reaction, and from 8 to 14 inches in thickness. Mottles are dominantly dark grayish brown (10YR 4/2), grayish brown (10YR 5/2), and yellowish brown (10YR 5/4). The C horizon is dominantly dark grayish brown (10YR 4/2), dark gray (10YR 4/1), grayish brown (10YR 5/2), and brown (10YR 5/3). It ranges from neutral to moderately alkaline in reaction. It ranges from silt loam to fine sandy loam in texture and is stratified with silty clay loam at a depth below 46 inches. Mottles are light brownish gray (10YR 6/2), dark yellowish brown (10YR 4/4), dark grayish brown (10YR 4/2), and gray (10YR 5/1).

Bruin silt loam, 0 to 1 percent slopes (BaA).—This soil is moderately well drained. It occurs on the natural levees, at some of the highest elevations in the parish, along Lake Bruin, Lake St. Joseph, and the Mississippi River. The surface layer is dark grayish brown and is about 10 inches thick. It is underlain by dark-brown or brown silt loam mottled with grayish brown, yellowish brown, and dark grayish brown. Included in mapping were small areas of Commerce and Robinsonville soils and small areas of soils that are medium acid in the surface layer.

This soil is easy to work. It can be cultivated throughout a wide range of moisture content. It is slightly acid or neutral in the uppermost 20 inches and becomes moderately alkaline below that depth. It is low in nitrogen and medium to high in phosphorus and potassium. Runoff is medium, and permeability is moderate. The available water capacity is high.

This is one of the most productive soils in the parish. It is well suited to most of the common crops. A plowpan frequently forms when the soil is cultivated. Control of runoff is needed in some areas to keep excess water from collecting in nearby depressions. Practically all of the acreage is used for cultivated crops. (Capability unit I–1; woodland group 1; wildlife group 2)

Bruin silt loam, 1 to 3 percent slopes (BaB).—This soil is moderately well drained. It occupies low narrow ridges, few of which are more than 250 feet wide. Slopes are short. The surface layer is dark grayish brown and is about 8 inches thick. It is underlain by brown or dark-brown silt loam mottled with grayish brown and yellowish brown. Included in mapping were small areas of well-drained Robinsonville very fine sandy loam and somewhat poorly drained Commerce silt loam, and small areas of soils that are medium acid in the surface layer. Also included were a few narrow ridges where the slope is 3 to 5 percent.

This soil is easy to work. It can be cultivated throughout a wide range of moisture content. It is slightly acid or neutral in the uppermost 20 inches and becomes moderately alkaline below that depth. It is low in nitrogen and medium to high in phosphorus and potassium. Runoff is medium, and permeability is moderate. The available water capacity is high.

This soil is well suited to most of the common crops. A plowpan frequently forms when the soil is cultivated. Most of the acreage is used for cultivated crops and pasture. Planting crops in rows across the slope helps to control runoff and reduces the hazard of erosion. (Capability unit IIe–1; woodland group 1; wildlife group 2)

Bruin-Mhoon complex, gently undulating (BmB).—These soils occupy low parallel ridges and swales. The ridges are 1 to 3 feet high, and only a few are more than 150 feet wide. Generally the swales are no more than 100 feet wide. The moderately well drained Bruin silt loam, which makes up nearly 60 percent of the complex, is on the ridges. Mhoon silt loam and Mhoon silty clay loam, which make up nearly 40 percent of the complex, are in the swales and are poorly drained. They are described under the heading "Mhoon Series." Included in mapping were small areas of Commerce, Robinsonville, and Sharkey soils and small areas of soils that are medium acid in the surface layer. Also included were a few narrow ridges where the slope is 3 to 5 percent.

The wetness in the swales and the irregular slopes make management somewhat difficult. These soils are low in nitrogen and moderate to high in phosphorus and potassium. They are neutral or slightly acid in the uppermost 20 inches and become moderately alkaline below that depth. The available water capacity is high. The soils on ridges are easy to work. They can be cultivated throughout a wide range of moisture content. On the ridges, runoff is medium and permeability is moderate. In the swales, runoff is slow and permeability is moderately slow.

These soils are suited to most of the common crops. A plowpan frequently forms when the soils are cultivated. Drainage is needed to remove water from the swales. Controlling erosion is the main problem on the ridges. Most of the acreage is used for cultivated crops and pasture. (Capability unit IIw–3; Bruin in woodland group 1, wildlife group 2; Mhoon in woodland group 3, wildlife group 3)

Bruin-Robinsonville-Crevasse complex, undulating (BrC).—These soils are on the natural levees adjacent to Lake Bruin. They occupy low parallel ridges and swales. The ridges are 2 to 5 feet high. The moderately well drained Bruin soils, which make up about 50 percent of the complex, are on the uppermost slopes of the ridges and in the swales. Robinsonville soils, which make up about 35 percent of the complex, are predominantly on the crests and upper slopes of the ridges and are well drained. They are described under the heading "Robinsonville Series." The Crevasse soils, which make up about 15 percent of the complex, occur as small areas on the crests of some of the ridges and are excessively drained. They are described under the heading "Crevasse Series." Included in mapping were small areas of Mhoon and Sharkey soils in the swales and small areas of soils that are medium acid in the surface layer.

The short irregular slopes and variable texture make management somewhat difficult. These soils can be cultivated throughout a wide range of moisture content. They are slightly acid or neutral in the surface layer and become moderately alkaline with increasing depth. They are low in nitrogen and moderate to high in phosphorus and potassium. Bruin and Robinsonville soils have medium runoff, moderate permeability, and high available water capacity. Crevasse soils have slow runoff, rapid permeability, and low available water capacity.

Bruin and Robinsonville soils are well suited to most of the common crops. Droughtiness limits crop production on Crevasse soils, and the irregular slopes interfere with cultivation. A plowpan frequently forms when these soils are cultivated. Controlling erosion is a problem on the ridges. Planting crops in rows parallel with the ridges and swales reduces the hazard of erosion. In some places drainage is needed to remove excess water from the swales. Most of the acreage is used for cultivated crops and pasture. (Capability unit IIe–2; Bruin and Robinsonville in woodland group 1, wildlife group 2; Crevasse in woodland group 5, wildlife group 1)

Clayey Alluvial Land

This land type occurs between the Mississippi River and its levees and in areas east of the Mississippi River. It is subject to deposition and scouring from overflow, which occurs on an average of 3 years out of 5. It is also likely to be destroyed by bank cutting as the Mississippi River shifts positions. The soil material ranges from clay to stratified layers of clay and loamy material.

The Clayey alluvial land in this parish is mapped with Sharkey clay, which is described under the heading "Sharkey Series."

Clayey alluvial land and Sharkey clay, overflow, 0 to 5 percent slopes (ChC).—This unit is subject to periodic overflow. It occurs between the Mississippi River and its levees and in areas east of the river. It is subject to deposition and scouring from each overflow, which occurs on an average of 3 years out of 5. It is also likely to be destroyed by bank cutting by the Mississippi River. Clayey alluvial land, which makes up about 50 percent of the unit, is dominantly clayey but is stratified with thin layers of loam. Sharkey clay, which makes up 40 percent of the unit, is clay throughout the profile and is not stratified. The

other 10 percent is made up of small areas of silty and sandy land.

This soil material is slightly acid to moderately alkaline in the surface layer and is mildly alkaline to moderately alkaline at a depth of more than 20 inches. Runoff and permeability are very slow.

The hazard of overflow makes this soil material unsuitable for cultivation and limits its suitability as woodland and pasture. Most of the acreage is woodland. Cleared areas are used for pasture. (Capability unit Vw–2; woodland group 3; wildlife group 6)

Commerce Series

Soils of the Commerce series are somewhat poorly drained. They formed in silty sediments deposited by the Mississippi River. They occur on the lower parts of the natural levees along Lake Bruin, Lake St. Joseph, and the Mississippi River.

Commerce soils are associated with Bruin, Mhoon, Sharkey, and Tunica soils. They are more poorly drained and at a lower elevation than Bruin soils. Commerce soils are coarser textured, better drained, and at a higher elevation than the adjacent Mhoon, Newellton, Sharkey, and Tunica soils.

The surface layer is dark grayish-brown silt loam. The subsoil is dark grayish-brown, light silty clay loam. It is underlain by grayish-brown silt loam.

The following profile of Commerce silt loam is in a cultivated field on the Northeast Louisiana Agricultural Experiment Station, 1,050 feet east of old U.S. Highway 65 and 1,200 feet northeast of Experiment Station Office in NE¼NW¼ sec. 35, T. 11 N., R. 12 E.

Ap1—0 to 6 inches, dark grayish-brown (10YR 4/2) silt loam; weak, very fine, granular structure; friable; few roots; slightly acid; abrupt, smooth boundary.

Ap2—6 to 10 inches, dark grayish-brown (10YR 4/2) silt loam; massive to weak, coarse, platy structure; firm; common, fine, soft, dark-brown aggregates; few roots; medium acid; abrupt, smooth boundary.

B2—10 to 19 inches, light silty clay loam; very dark grayish brown (10YR 3/2) on ped surfaces; dark grayish brown (10YR 4/2) with common, fine, faint, dark yellowish-brown (10YR 3/4) mottles, and few, fine, faint, very dark grayish-brown (10YR 3/2) mottles inside peds; moderate, fine and medium, subangular blocky structure; firm; a few fine pores in peds; few roots; neutral; clear, smooth boundary.

B3—19 to 25 inches, dark grayish-brown (10YR 4/2) silt loam; common, fine, distinct, dark yellowish-brown (10YR 4/4) mottles; few, fine, faint, very dark grayish-brown streaks on peds; weak, medium, subangular blocky structure; friable; very few roots; few, soft, dark-brown aggregates; common fine pores; neutral; gradual, smooth boundary.

C1—25 to 32 inches, grayish-brown (10YR 5/2) silt loam; common, fine, distinct, dark yellowish-brown (10YR 4/4) mottles; weak, coarse, subangular blocky structure; friable; very few roots; few, soft, dark-brown aggregates; moderately alkaline; noncalcareous; clear, smooth boundary.

A1b1—32 to 36 inches, silt loam; dark gray to dark grayish brown (10YR 4/1–4/2) on ped surfaces; gray to grayish brown (10YR 5/1–5/2) with common, fine, distinct, dark yellowish-brown (10YR 4/4) mottles inside peds; moderate, medium, subangular blocky structure; firm; few, soft, dark-brown aggregates; common fine pores in peds; moderately alkaline; noncalcareous; clear, smooth boundary.

C2—36 to 44 inches, grayish-brown (10YR 5/2) silt loam; common, fine, distinct, dark yellowish-brown (10YR 4/4) mottles; finely banded, faint color striations 1 to 2 millimeters thick are evident throughout; massive with some horizontal cleavage; friable; few fine pores; few, fine, soft, dark-brown aggregates; moderately alkaline; noncalcareous; gradual, smooth boundary.

C3—44 to 54 inches, grayish-brown (10YR 5/2) coarse silt loam; common, fine, distinct, dark yellowish-brown (10YR 4/4) mottles; finely banded, faint color striations 1 to 2 millimeters thick are evident throughout; massive with some horizontal cleavage; friable; few, fine, soft, dark-brown aggregates; moderately alkaline; noncalcareous; abrupt, smooth boundary.

A1b2—54 to 60 inches, dark-gray (10YR 4/1) silty clay; common, fine, distinct, dark yellowish-brown (10YR 4/4) mottles; moderate, medium, subangular blocky structure; firm; few fine pores in peds; few, soft, dark-brown aggregates; moderately alkaline; noncalcareous; abrupt, wavy boundary.

C4—60 to 62 inches, grayish-brown (10YR 5/2) coarse silt loam; common, fine, distinct, dark yellowish-brown (10YR 4/4) mottles; massive; friable; few fine pores; few, soft, dark-brown aggregates; mildly alkaline; noncalcareous; abrupt, smooth boundary.

A1b3—62 to 70 inches, dark-gray (10YR 4/1) medium silty clay loam; common, fine, distinct, dark yellowish-brown (10YR 4/4) mottles; moderate, fine, subangular blocky structure; firm; a few pores in peds; moderately alkaline; noncalcareous.

The A horizon ranges from dark grayish brown (10YR 4/2) to dark brown (10YR 4/3) in color, from medium acid to neutral in reaction, from 5 to 12 inches in thickness, and from silt loam to silty clay loam in texture. The B horizon ranges from very dark grayish brown (10YR 3/2) to dark grayish brown (10YR 4/2) in color, from slightly acid to mildly alkaline in reaction, from 4 to 14 inches in thickness, and from silty clay loam to heavy loam in texture. Mottles are dominantly dark yellowish brown (10YR 4/4) and very dark grayish brown (10YR 3/2); some are yellowish brown (10YR 5/8). The C horizon ranges from grayish brown (10YR 5/2) to dark grayish brown (10YR 4/2) in color, from neutral to moderately alkaline in reaction, and from silt loam to silty clay loam in texture.

Commerce silt loam, 0 to 1 percent slopes (CmA).—This soil is somewhat poorly drained. It occurs on the lower parts of the natural levees along the Mississippi River, Lake Bruin, and Lake St. Joseph. The surface layer is dark grayish brown and is about 10 inches thick. It is underlain by very dark grayish-brown or dark grayish-brown silty clay loam. Below this is silt loam, loam, or silty clay loam. In a few places this soil contains clay layers less than 6 inches thick. Included in mapping were a few soils that have a very dark gray subsoil. These dark-colored layers are 4 to 10 inches thick and are at a depth of 6 to 30 inches. These soils are in areas of Indian mounds. Also included were small areas of Bruin silt loam, Robinsonville very fine sandy loam, and Mhoon silt loam.

This soil is easy to work. It can be cultivated throughout a wide range of moisture content. It is medium acid to neutral in the uppermost 20 inches and is neutral to moderately alkaline below this depth. It is low in nitrogen and moderate to high in phosphorus and potassium. Runoff is medium, and permeability is moderately slow. The available water capacity is high.

This soil is well suited to most of the common crops. A plowpan frequently forms when the soil is cultivated. Control of runoff is needed to keep excess water from collecting in nearby depressions. Most of the acreage is used for cultivated crops and pasture. (Capability unit I–1; woodland group 1; wildlife group 2)

Commerce silt loam, 1 to 3 percent slopes (CmB).—This soil is somewhat poorly drained. It is on the natural levees along Lake Bruin, Lake St. Joseph, and the Mississippi River and occupies low narrow ridges and areas that slope toward the lakes. The surface layer is dark grayish brown and is about 8 inches thick. It is underlain by dark grayish-brown silty clay loam. Below this is silt loam, loam, or silty clay loam. Included in mapping were small areas of Bruin silt loam, Mhoon silt loam, and Robinsonville very fine sandy loam. In a few places the slope is 3 to 5 percent.

This soil is easy to work. It can be cultivated throughout a wide range of moisture content. It is medium acid to neutral in the surface layer and becomes moderately alkaline at a depth below 20 inches. It is low in nitrogen and moderate to high in phosphorus and potassium. Runoff is medium, and permeability is moderately slow. The available water capacity is high.

This soil is well suited to most of the common crops. A plowpan frequently forms when the soil is cultivated. Most of the acreage is used for cultivated crops and pasture. Planting crops in rows across the slope helps to control runoff and reduces the hazard of erosion. (Capability unit IIe-1; woodland group 1; wildlife group 2)

Commerce silty clay loam, 0 to 1 percent slopes (CnA).—This soil is somewhat poorly drained. It occurs on low natural levees along the Mississippi River, Lake Bruin, and Lake St. Joseph. It is bordered by Bruin silt loam and Commerce silt loam, which are at a higher elevation, and by Mhoon, Tunica, and Sharkey soils, which are at a lower elevation. The surface layer is dominantly dark grayish brown and is 4 to 10 inches thick. It is underlain by grayish-brown or dark grayish-brown silt loam or loam. At a depth below 20 inches is grayish-brown silty clay loam or silt loam, mostly stratified. Mottles range from yellowish brown to gray. Included in mapping were small areas of Mhoon silty clay loam, Tunica soils, and Commerce silty clay loam, 1 to 3 percent slopes.

This soil is fairly easy to cultivate but is likely to become cloddy when worked. It is medium acid to neutral in the surface layer and moderately alkaline at a depth below 20 inches. It is low in nitrogen and moderate to high in phosphorus and potassium. Runoff is slow, and permeability is slow. The available water capacity is high.

This soil is well suited to most of the common crops. Most of the acreage is used for cultivated crops and pasture. Cropland and pasture generally need drainage. (Capability unit IIw-1; woodland group 1; wildlife group 2)

Commerce silty clay loam, gently undulating (CoB).—This soil is somewhat poorly drained. It occupies low parallel ridges and swales. The swales make up 35 percent of the area. Few are more than 150 feet wide. The ridges, which make up about 65 percent of the area, are 1 to 4 feet higher than the swales and are somewhat better drained. Few of these are more than 200 feet wide. The surface layer is dark grayish brown. It is underlain by silt loam. At a depth below 15 inches are stratified layers of silt loam, loam, and silty clay loam. Included in mapping were small areas of Commerce silt loam and Newellton silty clay loam, both of which have layers of loamy sand and clay 6 inches thick. These layers are generally at a depth below 15 inches.

The irregular slopes and wetness in the swales make management somewhat difficult. This soil is fairly easy to cultivate but is likely to become cloddy when worked. It is medium acid to neutral in the uppermost 20 inches and neutral to moderately alkaline below this depth. It is low in nitrogen and moderate to high in phosphorus and potassium. Runoff is medium on the ridges and slow in the swales. Permeability is slow. The available water capacity is high.

This soil is well suited to most of the common crops. Most of the acreage is used for cultivated crops and pasture. Cropland and pasture need drainage. (Capability unit IIw-3; woodland group 1; wildlife group 2)

Crevasse Series

Soils of the Crevasse series are excessively drained. They formed in coarse-textured alluvium deposited by the Mississippi River. They occupy recent natural levees that border the Mississippi River or its former channels. The surface layer is light yellowish-brown fine sand. It is underlain by brown and pale-brown fine sand.

Crevasse soils are associated with Bruin, Commerce, Robinsonville, and Sharkey soils. They are coarser textured than those soils.

The following profile of Crevasse fine sand is along the Mississippi River, approximately 8 miles east of St. Joseph, 200 feet northwest of 1931 USCGS bench mark, and 55 feet northeast of cottonwood tree in T. 13 N., R. 13 E.

Ap—0 to 5 inches, light yellowish-brown (10YR 6/4) fine sand; single grain; loose; many fine roots; clear, smooth boundary; slightly acid.

C1—5 to 14 inches, pale-brown (10YR 6/3) fine sand; single grain; loose; few fine roots; clear, smooth boundary; neutral.

C2—14 to 23 inches, brown (10YR 5/3) and yellowish-brown (10YR 5/4) fine sand; single grain; loose; few fine roots; clear, smooth boundary; mildly alkaline.

C3—23 to 60 inches, pale-brown (10YR 6/3) fine sand; few streaks of yellowish brown (10YR 5/4) loamy sand; single grain; loose; moderately alkaline at a depth of 50 inches.

The A horizon ranges from dark brown (10YR 4/3) to light yellowish brown (10YR 4/6) in color, from 4 to 10 inches in thickness, from fine sandy loam to coarse sand in texture, and from slightly acid to moderately alkaline in reaction. The C horizon ranges from brown (10YR 5/3) to pale brown (10YR 7/3) in color, from loamy fine sand to coarse sand in texture, and from neutral to moderately alkaline in reaction.

Crevasse fine sand, 0 to 8 percent slopes (CrD).—This soil is excessively drained. It occupies parallel ridges and swales. The ridges are 1 to 8 feet high, and few are more than 250 feet wide. Only a few swales are more than 150 feet wide. For the most part, this soil is adjacent to the Mississippi River. There are a few areas near Lake Bruin and Lake St. Joseph, each of which is less than 300 acres. The surface layer is light yellowish brown and is about 5 inches thick. It is underlain by layers of yellowish-brown and pale-brown fine sand and loamy sand that extend to a depth of more than 42 inches. Included in mapping were small areas of Robinsonville very fine sandy loam, Bruin silt loam, Commerce silt loam, and Sharkey silt loam, and small areas of soils that are medium acid in the surface layer.

This soil is fairly easy to till, but it dries out quickly after rains. It is slightly acid or neutral in the surface layer and becomes moderately alkaline with increasing depth. It is low in nitrogen and moderate in phosphorus and potassium. Runoff is slow, and permeability is rapid. The available water capacity is low. Poor traction in the loose, dry sand makes the operation of farm equipment difficult.

This soil is not well suited to many crops. Most of the acreage is woodland. (Capability unit IVs–1; woodland group 5; wildlife group 1)

Crevasse fine sand, overflow, 0 to 8 percent slopes (CsD).—This soil is subject to overflow. It receives deposition, loses soil material by scouring, and is likely to be destroyed by bank cutting as the Mississippi River shifts positions. Part of the acreage is adjacent to the Mississippi River, and the rest is in areas east of the Mississippi River. The surface layer is light yellowish brown and is about 5 inches thick. It is underlain by layers of yellowish-brown and pale-brown fine sand and loamy sand that extend to a depth of more than 42 inches. Included in mapping were small areas of Robinsonville, Bruin, and Commerce soils.

The soil is medium acid to neutral in the surface layer and becomes moderately alkaline with increasing depth. Runoff is slow, and permeability is rapid. The available water capacity is low. Poor traction in the loose, dry sand makes the operation of farm equipment difficult.

This soil is not suited to cultivated crops, because of frequent overflow, and its use for woodland and pasture is uncertain. Most of the acreage is woodland. Some areas that receive deposition lack vegetation. (Capability unit Vw–2; woodland group 5; wildlife group 5)

Dundee Series

Soils of the Dundee series are somewhat poorly drained. They formed in stratified, medium-textured and moderately fine textured alluvium deposited by the Mississippi River. They occur on natural levees along the Mississippi River and smaller streams. Typically the surface layer is brown silt loam or loam. The subsoil is dark grayish-brown clay loam. It is underlain by dark grayish-brown loam.

Dundee soils are associated with Goldman, Alligator, Tensas, and Sharkey soils. They are finer textured and less friable than Goldman soils, and they are not so well drained as those soils. They lack the thick clay layers that are characteristic of Alligator, Tensas, and Sharkey soils.

The following profile of Dundee silt loam is on a natural levee 1½ miles west of Waterproof, 800 feet north and 360 feet west of the intersection of State Highways 566 and 3044, Spanish Land Grant, sec. 39, T. 10 N., R. 10 E.

Ap1—0 to 5 inches, dark-brown (10YR 4/3) silt loam; weak, very fine, granular structure; friable; roots common; slightly acid; clear, smooth boundary.

Ap2—5 to 8 inches, dark-brown (10YR 4/3) silt loam; massive in place but breaks to weak, thick platy structure; firm; few roots; few, fine, faint, dark-brown aggregates; medium acid; abrupt, irregular boundary.

B21t—8 to 15 inches, loam; very dark grayish brown (10YR 3/2) and dark grayish brown (10YR 4/2) in about equal proportions on ped faces; dark grayish brown (10YR 4/2) with common, fine, distinct, dark yellowish-brown (10YR 4/4) and few, fine, faint, grayish-brown (10YR 5/2) mottles inside peds; moderate, fine and medium, subangular blocky structure adhering as weak, medium, prismatic; firm; distinct clay films in pores and on 60 percent of vertical and horizontal ped surfaces; few roots; common fine pores in peds; common, fine, dark-brown aggregates; very strongly acid; clear, smooth boundary.

B22t—15 to 23 inches, loam; 60 percent very dark grayish brown (10YR 3/2) and 40 percent dark grayish brown (10YR 4/2) on ped surfaces; dark grayish brown (10YR 4/2) with common, fine, distinct, dark yellowish-brown (10YR 4/4) and grayish-brown (10YR 5/2) mottles inside peds; moderate, medium, subangular blocky structure adhering as weak, medium, prismatic; firm; distinct clay films in most pores and patchy clay films on 50 percent of ped surfaces; a few roots; common fine pores in peds; common, soft, dark-brown aggregates; very strongly acid; clear, smooth boundary.

B3t—23 to 30 inches, loam; dark grayish brown (10YR 4/2) on ped surfaces; grayish brown (10YR 5/2) with common, fine, distinct, dark yellowish-brown (10YR 4/4) mottles inside peds; weak, coarse, subangular blocky structure adhering as weak, medium, prismatic; firm; distinct patchy clay films on 15 percent of ped surfaces; very few roots; few fine pores in peds; very few dark-brown aggregates; very strongly acid; clear, smooth boundary.

C1—30 to 41 inches, grayish-brown (10YR 5/2) very fine sandy loam; common, fine, distinct, dark yellowish-brown (10YR 4/4) mottles; massive; friable; very few roots; very few, soft, dark-brown aggregates; few fine pores; strongly acid; clear, smooth boundary.

C2—41 to 53 inches, grayish-brown (10YR 5/2) loam; common, fine, distinct, dark-brown (10YR 4/3) mottles; massive; friable; very few roots; few fine pores; very few, soft, dark-brown aggregates; strongly acid; gradual, smooth boundary.

C3—53 to 65 inches, light brownish-gray (10YR 6/2) very fine sandy loam; common, fine, distinct, dark-brown (10YR 4/3) mottles; massive; friable; very few roots; very few fine pores; very few, soft, dark-brown aggregates; medium acid; clear, smooth boundary.

C4—65 to 76 inches, grayish-brown (10YR 5/2) loam; common, fine, distinct, dark-brown (10YR 4/3) mottles; massive; friable; very few fine pores; very few dark-brown aggregates; medium acid; gradual, smooth boundary. Stratum of light-gray silty clay loam at a depth of 65 to 67 inches.

C5—76 to 90 inches, grayish-brown (10YR 5/2) silt loam in upper part, but grades to very fine sandy loam in lower part; common, fine, distinct, dark yellowish-brown (10YR 4/4) mottles and few, fine, faint, yellowish-brown (10YR 5/6) mottles; massive; friable; few, fine, soft, dark-brown aggregates; medium acid; gradual, smooth boundary.

C6—90 to 102 inches, dark grayish-brown (10YR 4/2) loamy fine sand; common, fine, distinct, dark yellowish-brown (10YR 4/4) mottles; single grain; loose; medium acid.

The A horizon ranges from dark brown (10YR 4/3) to dark grayish brown (10YR 4/2) in color, from strongly acid to slightly acid in reaction, and from 3 to 9 inches in thickness. It is silt loam, loam, or silty clay loam in texture. The B horizon is dominantly dark grayish brown (10YR 4/2) but ranges from very dark grayish brown (10YR 3/2) to grayish brown (10YR 5/2). It is medium acid to very strongly acid in reaction. The B2 horizon is typically clay loam in texture but ranges from silty clay loam to light clay loam. Clay films are common. The mottles are dark yellowish brown (10YR 4/4), grayish brown (10YR 5/2), and yellowish brown (10YR 5/8). The C horizon ranges from grayish brown (10YR 5/2) to dark grayish brown (10YR 4/2) in color, from slightly acid to very strongly acid in reaction, and from loamy fine sand to silty clay loam in texture. Mottles are gray (10YR 5/1), dark yellowish brown (10YR 4/4), dark brown (10YR 4/3), yellowish brown (10YR 5/8), and strong brown (7.5YR 5/6).

Dundee silt loam (Dd).—This soil is somewhat poorly drained. It occurs mainly in the western part of the parish,

along the natural levees of abandoned channels of the Mississippi River and smaller streams. The slope range is 0 to 1 percent. The surface layer is brown or dark grayish brown and is about 8 inches thick. It is underlain by dark grayish-brown clay loam or silty clay loam. Below this is dark grayish-brown silt loam, loam, very fine sandy loam, or light silty clay loam mottled with dark yellowish brown, dark grayish brown, and grayish brown. Included in mapping were small areas of Tensas silty clay loam, areas where the slope is 1 to 3 percent, and small areas of soils that have a surface layer of silty clay loam, very fine sandy loam, or loam.

This soil is easy to work and responds well to management. It is low in nitrogen and low to moderate in phosphorus and potassium. It is very strongly acid to slightly acid in the root zone. Runoff is medium, and permeability is moderately slow. The available moisture capacity is high. There are small scattered spots of droughty soils, locally called "hot spots," that affect crops noticeably during dry periods. These spots probably result from slow water intake. They are about 1/6 to 1 acre in size.

This soil is well suited to most of the crops commonly grown. A plowpan frequently forms when the soil is cultivated. Water control is needed in some areas to keep excess water from collecting in the nearby depressions. Most of the acreage is used for cultivated crops and pasture. (Capability unit I–2; woodland group 2; wildlife group 2)

Dundee silty clay loam (De).—This soil is somewhat poorly drained. It occurs on the low natural levees of former channels of the Mississippi River and small streams. The slope range is 0 to 1 percent. The surface layer is mainly dark grayish brown and is about 6 inches thick. It is underlain by dark grayish-brown or grayish-brown silty clay loam that is about 19 inches thick. Below this is silt loam, loam, or silty clay loam mottled with dark yellowish brown, dark brown, and grayish brown. The subsoil in most places is somewhat thicker than that of Dundee silt loam. Included in mapping were small areas of Tensas silty clay loam and Dundee silt loam, small areas that have a silty clay subsoil less than 10 inches thick, and areas where the slope is 1 to 3 percent.

This soil is fairly easy to work and responds well to management. It tends to become cloddy when worked. It is low in nitrogen and low to moderate in phosphorus and potassium. The surface layer is strongly acid to slightly acid, and the rest of the profile is very strongly acid to slightly acid. Runoff is medium, and permeability is slow. The available moisture capacity is high.

This soil is suited to most of the crops commonly grown. Most of the acreage is used for cultivated crops and pasture. Cropland and pasture generally need drainage. (Capability unit IIw–2; woodland group 2; wildlife group 3)

Dundee-Tensas-Goldman complex, gently undulating (DtB).—These soils occupy low parallel ridges and swales. They are in the southwestern part of the parish. The ridges are 1 to 3 feet high and generally are no more than 100 feet wide. The somewhat poorly drained Dundee silt loam and Dundee silty clay loam, which make up about 45 percent of the complex, are on the crests and the uppermost slopes of the ridges. Goldman very fine sandy loam, which makes up about 30 percent of the complex, is on the crests of the ridges and is moderately well drained. This soil is described under the heading "Goldman Series." Tensas clay and Tensas silty clay loam, which make up about 25 percent of the complex, are chiefly in the swales and are poorly drained to somewhat poorly drained. They are described under the heading "Tensas Series." Included in mapping were small areas that consist only of Dundee and Tensas soils and small areas of Alligator and Sharkey soils in the swales. In a few places the slope is 3 to 5 percent.

Wetness in the swales and the irregular slopes make management somewhat difficult. These soils are slightly acid to very strongly acid. They are low in nitrogen and low to moderate in phosphorus and potassium. Dundee soils have moderately slow permeability and high available water capacity. Goldman soils have moderate permeability and moderate available water capacity. Tensas soils have very slow permeability and moderate available water capacity. Runoff is medium on the ridges and slow in the swales.

These soils are suited to most of the common crops. Cropland and pasture need drainage. Controlling erosion is a problem on the ridges. Most of the acreage is used for cultivated crops. (Capability unit IIIw–6; Dundee in woodland group 2, wildlife group 2; Tensas in woodland group 4, wildlife group 4; Goldman in woodland group 2, wildlife group 2)

Dundee-Goldman-Tensas complex, undulating (DgD).—These soils occupy parallel ridges and swales. They are in the southwestern part of the parish. The ridges are 3 to 8 feet high and generally are less than 150 feet wide. The swales generally are no more than 100 feet wide. The somewhat poorly drained Dundee silt loam and Dundee silty clay loam, which make up about 50 percent of the complex, are on the crests and the uppermost slopes of the ridges. Goldman very fine sandy loam, which makes up about 25 percent of the complex, is on the crests of the ridges and is moderately well drained. This soil is described under the heading "Goldman Series." Tensas silty clay and Tensas silty clay loam, which make up about 25 percent of the complex, are in the swales and are poorly drained to somewhat poorly drained. They are described under the heading "Tensas Series." Included in mapping were small areas of Alligator soils in the swales and small areas of Goldman soils that have thin layers of loamy fine sand at a depth below 20 inches.

Wetness in the swales and the irregular slopes make management difficult. These soils are strongly acid to slightly acid in the surface layer and very strongly acid to medium acid in the subsoil. They are low in nitrogen and low to moderate in phosphorus and potassium. Dundee soils have moderately slow permeability and high available water capacity. Goldman soils have moderate permeability and moderate available water capacity. Tensas soils have very slow permeability and moderate available water capacity. Runoff is medium on the ridges and slow in the swales.

These soils are suited to most of the common crops. Cropland and pasture need drainage. Controlling erosion is a problem on the ridges. Most of the acreage is used for cultivated crops and pasture. (Capability unit IIIw–6; Dundee and Goldman in woodland group 2, wildlife group 2; Tensas in woodland group 4, wildlife group 4)

Goldman Series

Soils of the Goldman series are moderately well drained and moderately permeable. They formed in old alluvium deposited by the Mississippi River. They occur on the crests of narrow ridges in the central and southwestern parts of the parish. They are mapped only as complexes with Dundee and Tensas soils. The surface layer is dark grayish-brown very fine sandy loam. The subsoil is brown loam mottled with yellowish brown and light brownish gray. It is underlain by yellowish-brown fine sandy loam and very fine sandy loam mottled with light brownish gray.

Goldman soils are associated with Dundee, Tensas, and Alligator soils. They have a higher content of sand and are better drained than Dundee soils. They are better drained and coarser textured than Tensas and Alligator soils.

The following profile of Goldman very fine sandy loam is on the crest of a ridge in a pasture 337 feet north of the center of State Highway 566 and 100 feet west of private road, approximately 7½ miles southwest of Waterproof in NW¼SW¼ sec. 11, T. 9 N., R. 9 E.

Ap—0 to 5 inches, dark grayish-brown (10YR 4/2) very fine sandy loam; weak, medium, subangular blocky structure; friable; many fine roots; medium acid; abrupt, smooth boundary.

B21t—5 to 9 inches, dark-brown (10YR 4/3) loam; few, fine, faint, dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; friable; few streaks of grayish brown, and some peds coated with dark grayish brown; many fine roots; few pores in peds; few, patchy clay films; medium acid; abrupt, smooth boundary.

B22t—9 to 18 inches, brown (10YR 5/3) light loam; common, fine, faint, light brownish-gray (10YR 6/2) mottles and few, fine, faint, dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; friable; few fine roots; fine pores in peds; few patchy clay films; medium acid; clear, smooth boundary.

B31—18 to 24 inches, yellowish-brown (10YR 5/4) fine sandy loam; few, fine, faint, light brownish-gray (10YR 6/2) mottles; weak, medium, subangular blocky structure; very friable; few fine pores in peds; few roots; few streaks of dark brown; strongly acid; wavy boundary.

B32—24 to 32 inches, yellowish-brown (10YR 5/4) very fine sandy loam; common, fine, faint, light brownish-gray (10YR 6/2) mottles and few, fine, faint, yellowish-brown (10YR 5/6) mottles; weak, medium, subangular blocky structure; friable; few roots; few fine pores in peds; strongly acid; clear, smooth boundary.

C1—32 to 44 inches, variegated dark-brown (10YR 4/3) and light brownish-gray (10YR 6/2) fine sandy loam; few, fine, distinct, yellowish-brown (10YR 5/6) mottles; weak, coarse, subangular blocky structure; few fine pores in peds; very few roots; strongly acid; clear, smooth boundary.

C2—44 to 60 inches, brown (10YR 5/3) very fine sandy loam; few, fine, faint, light brownish-gray (10YR 6/2) mottles and very few, dark yellowish-brown (10YR 4/4) mottles; friable; medium acid.

C3—60 to 72 inches, dark grayish-brown (10YR 4/2) very fine sandy loam; few, fine, distinct, yellowish-brown (10YR 5/6) mottles and few, light brownish-gray (10YR 6/2) mottles; friable; medium acid.

C4—72 to 88 inches, dark-brown (10YR 4/3) fine sandy loam; few, fine, faint, light brownish-gray (10YR 6/2) mottles; very friable; slightly acid.

The A horizon ranges from dark grayish brown (10YR 4/2) to dark brown (10YR 4/3) in color, from strongly acid to slightly acid in reaction, and from 4 to 12 inches in thickness. It is very fine sandy loam or fine sandy loam in texture. The B horizon is dark brown (10YR 4/3), brown (10YR 5/3), yellowish brown (10YR 5/4), or dark yellowish brown (10YR 4/4) in color and ranges from heavy loam to fine sandy loam in texture. The C horizon is yellowish brown (10YR 5/4), dark brown (10YR 4/3), brown (10YR 5/3), and dark grayish brown (10YR 4/2). It ranges from very fine sandy loam to loamy fine sand in texture. Mottles in the B and C horizons are dark yellowish brown (10YR 4/4), dark brown (10YR 4/3), light brownish gray (10YR 6/2), yellowish brown (10YR 5/6, 5/8), and grayish brown (10YR 5/2). There are a few mottles of low chromas in the uppermost 15 inches. The C horizon ranges from slightly acid to very strongly acid in reaction.

Loamy Alluvial Land

This land type occurs between the Mississippi River and its levees and in areas east of the river. It is subject to deposition and scouring from overflow, which occurs on an average of 3 years out of 5. It is also likely to be destroyed by bank cutting as the Mississippi River shifts positions. This land type is dominantly stratified loamy material, but in some areas it contains clayey and sandy material.

The Loamy alluvial land in this parish is mapped with Robinsonville soils, which are described under the heading "Robinsonville Series."

Loamy alluvial land and Robinsonville soils, overflow, 0 to 5 percent slopes (LrC).—This unit is subject to periodic overflow. It occurs between the Mississippi River and its levees and in areas east of the river. It is subject to deposition and scouring from overflow, which occurs on an average of 3 years out of 5. It is also subject to bank cutting as the river shifts positions. Loamy alluvial land, which makes up about 75 percent of the unit, is dominantly stratified loamy material, but in some areas it contains clayey and sandy material. Robinsonville soils, which make up about 25 percent of the unit, are very fine sandy loams.

The soil material is neutral or mildly alkaline in the uppermost 20 inches and is moderately alkaline below that depth. Runoff is medium, and permeability is moderate.

The hazard of overflow makes this unit unsuitable for cultivated crops and limits its suitability for woodland and pasture. Most of the acreage is woodland. The rest is used for pasture. (Capability unit Vw-2; woodland group 1; wildlife group 5)

Mhoon Series

Soils of the Mhoon series are poorly drained. They formed in fine-textured and medium-textured alluvium deposited by the Mississippi River. They occur in slight depressions in the narrow swales. The surface layer is dark grayish-brown silty clay loam. It is underlain by dark-gray silty clay or silty clay loam mottled with yellowish brown. This layer is underlain by stratified, grayish-brown silt loam, very fine sandy loam, and silty clay loam or by thin layers of clay.

Mhoon soils are associated with Bruin, Newellton, Tunica, and Sharkey soils. They are more poorly drained than Bruin and Commerce soils and are underlain by finer textured material. They lack the clay surface layer that is characteristic of Newellton, Tunica, and Sharkey soils.

The following profile of Mhoon silty clay loam is in a cultivated field on the Northeast Agricultural Experiment Station, 150 feet west of the north-south field boundary, 110 feet north of the east-west fence, and 200 feet south

of old U.S. Highway 65 in SW¼NW¼ sec. 35, T. 11 N., R. 12 E. (almost on quarter section line).

Ap—0 to 6 inches, dark grayish-brown (10YR 4/2) silty clay loam; weak, coarse, subangular blocky structure; firm; abrupt, smooth boundary; slightly acid.

C1—6 to 11 inches, dark-gray (10YR 4/1) silty clay loam; common, medium, distinct, dark-brown (7.5YR 4/4) mottles; massive; firm; medium pockets of pale-brown (10YR 6/3) silt loam; gradual, smooth boundary; moderately alkaline.

C2—11 to 19 inches, dark-gray (10YR 4/1) silty clay loam; common, fine, distinct, dark-brown (7.5YR 4/2) mottles; moderate, medium, subangular blocky structure; firm; gradual, smooth boundary; moderately alkaline.

C3—19 to 29 inches, gray (10YR 5/1) silty clay; common, medium, distinct, dark-brown (7.5YR 4/4) mottles; strong, fine, angular blocky structure; firm; gradual, smooth boundary; moderately alkaline.

C4—29 to 42 inches, gray (10YR 5/1) silty clay loam; common, medium, distinct, dark-brown (7.5YR 4/4) mottles; moderate, medium, subangular blocky structure; firm; moderately alkaline.

The A horizon ranges from dark grayish brown (10YR 4/2) to dark gray (10YR 4/1) in color, from silt loam to silty clay loam in texture, and from 4 to 10 inches in thickness. It is slightly acid or neutral in reaction. The C horizon is dominantly dark gray (10YR 4/1) but ranges from grayish brown (10YR 5/2) to gray (10YR 5/1) at a depth below 20 inches. In the uppermost 20 inches the insides of the peds are dark grayish brown (10YR 4/2). This horizon ranges from neutral to moderately alkaline in reaction. It is silt loam, very fine sandy loam, silty clay loam, or silty clay in texture. The individual layers vary in thickness and differ in their positions in the profile. The silty clay layers are ordinarily less than 12 inches thick. Mottles are dark yellowish brown (10YR 4/4), dark brown (7.5YR 4/4), and gray (10YR 5/1).

Mhoon silt loam (Mh).—This is a level, poorly drained soil. It occurs on the Northeast Louisiana Agricultural Experiment Station. It is bordered by Commerce silt loam, which is at a higher elevation, and by Sharkey clay, which is at a lower elevation. The surface layer is dark grayish brown and is about 6 inches thick. It is underlain by stratified layers of silt loam, very fine sandy loam, and silty clay loam.

This soil is easy to work and responds well to management. It is slightly acid or neutral to a depth of 20 inches and is neutral to moderately alkaline below that depth. It is low in nitrogen and moderate to high in phosphorus and potassium. Runoff is medium, and permeability is slow. The available water capacity is high.

This soil is well suited to most of the common crops. All of the acreage is used for cultivated crops. Cropland and pasture need drainage. (Capability unit IIw-1; woodland group 3; wildlife group 3)

Mhoon silty clay loam (Mo).—This is a level, poorly drained soil. In places it is in depressions. It generally occurs as narrow areas bordered by Commerce soils, which are at a higher elevation, and by Sharkey soils, which are at a lower elevation. The surface layer is dark grayish brown and is about 6 inches thick. It is underlain by stratified layers of silty clay, silty clay loam, and silt loam. The individual layers vary in thickness and in some areas differ in their position within the profile. The silty clay layers are generally less than 10 inches thick. Included in mapping were small areas of Commerce silt loam, Commerce silty clay loam, Tunica clay, and Sharkey silty clay loam, and small areas of soils that are medium acid in the surface layer.

This soil is fairly easy to cultivate but is likely to become cloddy when worked. It is slightly acid or neutral in the surface layer and is neutral to moderately alkaline throughout the rest of the profile. It is low in nitrogen and moderate to high in phosphorus and potassium. Runoff is medium, and permeability is slow. The available water capacity is high.

This soil is well suited to most of the common crops. Most of the acreage is used for cultivated crops and pasture. Cropland and pasture need drainage. (Capability unit IIw-1; woodland group 3; wildlife group 3)

Newellton Series

Soils of the Newellton series are somewhat poorly drained. They formed in fine-textured and medium-textured alluvium deposited by the Mississippi River. They occur on low natural levees along Lake St. Joseph and abandoned channels of the Mississippi River and on low narrow ridges away from the natural levees. The surface layer is dark grayish-brown clay. The subsoil is dark grayish-brown clay mottled with dark yellowish brown. It is underlain by loam, silty clay loam, silt loam, or very fine sandy loam.

Newellton soils are associated with Commerce, Mhoon, Sharkey, and Tunica soils. They are finer textured than Commerce soils. They are better drained and finer textured than Mhoon soils. These soils are underlain by loamy material at a depth of 10 to 20 inches, in comparison with Sharkey soils, which are clay to a depth of 42 inches or more. They are better drained and are shallower over loamy material than Tunica soils.

The following profile of Newellton clay is in a pasture 275 feet west of State Highway 608, 400 feet north of large drainage ditch, and 1¾ miles northeast of Newellton in SE¼SW¼ sec. 45, T. 13 N., R. 12 E.

Ap—0 to 4 inches, dark grayish-brown (10YR 4/2) clay; few, fine, faint, dark yellowish brown (10YR 4/4) mottles; moderate, medium, subangular blocky structure; firm; many fine roots; slightly acid; clear, smooth boundary.

B—4 to 14 inches, dark grayish-brown (10YR 4/2) clay; common, fine, faint, dark yellowish-brown (10YR 4/4) mottles; strong, medium, subangular blocky structure; very firm; many fine roots; few pores in peds; few worm casts of very dark grayish-brown silty clay loam; neutral; abrupt, smooth boundary.

IIC1—14 to 17 inches, dark grayish-brown (10YR 4/2) loam; many, fine, faint, dark yellowish-brown (10YR 4/4) mottles and few, fine, distinct, dark-brown (7.5YR 4/4) mottles; weak, medium, subangular blocky structure; friable; few fine roots; moderately alkaline; gradual, wavy boundary.

IIC2—17 to 23 inches, grayish-brown (10YR 5/2) silty clay loam; common, fine, faint, dark yellowish-brown (10YR 4/4) mottles and few, fine, distinct, dark-brown (7.5YR 4/4) mottles; moderate, medium, subangular blocky structure; firm; few fine roots; few fine pores; few root channels and streaks of dark grayish-brown silty clay loam; moderately alkaline; clear, smooth boundary.

IIC3—23 to 32 inches, grayish-brown (10YR 5/2) silt loam; common, fine, faint, dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; friable; few fine roots; many fine pores; many, fine, soft, lime concretions; few root channels filled with dark-gray silty clay loam; moderately alkaline; gradual, wavy boundary.

IIC4—32 to 36 inches, grayish-brown (10YR 5/2) loam; common, fine, faint, dark yellowish-brown (10YR 4/4) mottles; few, fine, faint, dark-gray (10YR 4/1) mot-

tles; and few, fine, distinct, reddish-brown (5YR 4/4) mottles; massive; friable; few fine roots; few fine pores; many lime concretions; moderately alkaline; gradual, smooth boundary.

IIC5—36 to 42 inches, light brownish-gray (10YR 6/2) very fine sandy loam; common, fine, distinct, strong-brown (7.5YR 5/8) mottles and few streaks of black (10YR 2/1) loam; weak, medium, subangular blocky structure; very friable; few roots; mildly alkaline.

The A horizon ranges from very dark grayish brown (10YR 3/2) to dark grayish brown (10YR 4/2) in color, from silty clay loam to clay in texture, and from 4 to 7 inches in thickness. It is slightly acid or neutral in reaction. The B horizon is dark grayish brown (10YR 4/2) in color and clay or silty clay in texture. It ranges from neutral to moderately alkaline in reaction. It ranges from 6 to 13 inches in thickness if the surface texture is clay, but is at least 10 inches thick if the surface texture is silty clay loam. Mottles are dark yellowish brown (10YR 4/4), dark brown (7.5YR 4/4), and gray (10YR 4/1). The IIC horizon is grayish brown (10YR 5/2), dark grayish brown (10YR 4/2), and light brownish gray (10YR 6/2) and in places contains strata of pale brown (10YR 6/3). Mottles are dark yellowish brown (10YR 4/4), dark brown (7.5YR 4/4), dark gray (10YR 4/1), and reddish brown (5YR 4/4). This horizon is dominantly mildly alkaline or moderately alkaline. It ranges from very fine sandy loam to light silty clay in texture. Stratification is common. In places lime concretions occur at a depth below 20 inches.

Newellton clay, 0 to 1 percent slopes (NcA).—This soil is somewhat poorly drained. It occurs on low natural levees along Lake St. Joseph and Lake St. Peter. The surface layer is dark grayish brown and is 4 to 6 inches thick. It is underlain by a 10- to 14-inch layer of dark grayish-brown clay. Below this is silt loam or loam, and in places layers of silty clay loam. Mottles are dark yellowish brown, dark brown, and strong brown. Included in mapping were small areas of Commerce silty clay loam, Newellton silty clay loam, and Tunica clay, and small areas of soils that are medium acid in the surface layer.

Preparing a seedbed is somewhat difficult. This soil cracks when dry, seals over when wet, and becomes cloddy when worked. It is slightly acid or neutral to a depth of 20 inches and is neutral to moderately alkaline below that depth. It is low in nitrogen and moderate to high in phosphorus and potassium. Runoff and permeability are slow. The available water capacity is moderate.

This soil is well suited to most of the common crops, but it is not well suited to corn. Most of the acreage is used for cultivated crops and pasture. Cropland and pasture need drainage. (Capability unit IIw–5; woodland group 3; wildlife group 3)

Newellton silty clay loam, 1 to 3 percent slopes (NeB).—This is a somewhat poorly drained soil. It occurs on low ridges that generally are no more than 250 feet wide and on nearly level areas of no more than 50 acres in size. The surface layer is dark grayish brown and is 4 to 6 inches thick. It is underlain by an 8- to 14-inch layer of dark grayish-brown clay. Below this is silt loam or very fine sandy loam, and in places layers of silty clay loam. Included in mapping were small areas of Commerce silty clay loam, Newellton clay, and Tunica soils, and small areas of soils that are medium acid in the surface layer. Also included were small areas where the slope is as much as 5 percent.

This soil is fairly easy to cultivate, but it is likely to become cloddy when worked. It is slightly acid or neutral in the surface layer and neutral to moderately alkaline at a depth below 20 inches. It is low in nitrogen and moderate to high in phosphorus and potassium. Runoff is medium, and permeability is slow. The available water capacity is moderate.

This soil is suited to most of the common crops. Most of the acreage is used for cultivated crops and pasture. Planting crops in rows across the slope helps to control runoff and reduces the hazard of erosion. (Capability unit IIw–4; woodland group 3; wildlife group 2)

Newellton clay, 1 to 5 percent slopes (NcC).—This soil is chiefly on narrow ridges, but it also occurs on the back slopes of natural levees. The areas generally are no more than 400 feet wide and 5,000 feet long. The surface layer is dark grayish brown and is 3 to 5 inches thick. It is underlain by a 10- to 15-inch layer of dark grayish-brown clay. Below this is silt loam or loam, and in places layers of silty clay loam. Mottles are dark yellowish brown, strong brown, and grayish brown. Included in mapping were small areas of Commerce silty clay loam, Newellton silty clay loam, Tunica clay, and small areas of soils that are medium acid in the surface layer.

Seedbed preparation is somewhat difficult. This soil cracks when dry, seals over when wet, and becomes cloddy when worked. It is slightly acid or neutral in the uppermost 20 inches and is neutral to moderately alkaline below that depth. It is low in nitrogen and moderate to high in phosphorus and potassium. Runoff is medium, and permeability is slow. The available water capacity is moderate.

This soil is suited to most cultivated crops, but it is not well suited to corn. About half of the acreage is used for cultivated crops and pasture. Planting crops in rows across the slope helps to control runoff and reduces the hazard of erosion. (Capability unit IIw–4; woodland group 3; wildlife group 4)

Newellton-Mhoon silty clay loams, gently undulating (NuB).—These soils occupy low parallel ridges and swales. The ridges are 1 to 3 feet high, and few are more than 225 feet wide. The swales are about 150 feet wide. The somewhat poorly drained Newellton soils, which make up about 55 percent of the complex, are on the ridges. Their surface layer is dark grayish brown and is 4 to 6 inches thick. It is underlain by an 8- to 16-inch layer of dark grayish-brown clay. Below this is silt loam or loam, and in places layers of silty clay loam. The poorly drained Mhoon soils, which make up about 45 percent of the complex, are in the swales and on the lower slopes of the ridges. Their surface layer is dark grayish brown and is 4 to 10 inches thick. It is generally underlain by dark-gray or gray silt loam, loam, or silty clay loam, but in some places it is underlain by clay or silty clay layers that are as much as 10 inches thick. Mhoon soils are described under the heading "Mhoon Series." Included in mapping were small areas of Commerce silty clay loam and Sharkey silty clay loam, and small areas of soils that are medium acid in the surface layer. Also included were small areas of Newellton silty clay loam where the slope is as much as 5 percent.

Wetness in the swales and the irregular slopes make management somewhat difficult. These soils are fairly easy to cultivate but are likely to become cloddy when worked. They are slightly acid or neutral in the surface layer and neutral to moderately alkaline at a depth below 20 inches. They are low in nitrogen and moderate to high in phosphorus and potassium. Runoff is medium on the ridges and slow in the swales. The available water capacity is high.

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These soils are suited to most cultivated crops. Most of the acreage is used for cultivated crops and pasture. Cropland and pasture need drainage. (Capability unit IIw-3; woodland group 3; wildlife group 4)

Newellton-Commerce-Tunica complex, undulating (NtC).—These soils occupy parallel ridges and swales along abandoned channels of the Mississippi River. The ridges are 2 to 5 feet high and are less than 175 feet wide. The swales are about 125 feet wide. The somewhat poorly drained Newellton soils, which make up about 45 percent of the complex, are on the uppermost slopes of the ridges. They have a 12- to 18-inch layer of clay over silt loam or loam and thin layers of silty clay loam. The somewhat poorly drained Commerce soils, which make up about 35 percent of the complex, are on the crests of the ridges. These soils have a 10-inch layer of silt loam or silty clay loam over stratified silt loam, loam, and silty clay loam. They are described under the heading "Commerce Series." The poorly drained Tunica clay, which makes up about 20 percent of the complex, is in the swales and on the lower slopes of the ridges. It has a 20- to 30-inch layer of clay or silty clay over stratified silt loam, loam, and silty clay loam. This soil is described under the heading "Tunica Series." Included in mapping were small areas of Bruin and Robinsonville soils on the crests of the ridges and small areas of Sharkey soils in the swales. About 40 percent of this complex has slopes of less than 3 percent.

Wetness in the swales and the irregular slopes make management difficult. These soils are slightly acid or neutral in the uppermost 10 inches and are neutral to moderately alkaline below that depth. They are low in nitrogen and moderate to high in phosphorus and potassium. Commerce soils have moderate to moderately slow permeability and high available water capacity. Newellton soils have slow permeability and moderate available water capacity. Tunica soils have very slow permeability and moderate available water capacity. Runoff is medium on the ridges and slow in the swales.

These soils are suited to most cultivated crops. Most of the acreage is used for cultivated crops and pasture. Controlling erosion is a problem on the ridges. Cropland and pasture need drainage. (Capability unit IIIw-4; Newellton in woodland group 3, wildlife group 4; Commerce in woodland group 1, wildlife group 2; Tunica in woodland group 3, wildlife group 4)

Newellton-Sharkey clays, undulating (NyC).—These soils occupy low parallel ridges and swales. The ridges are 2 to 5 feet high, and few are more than 300 feet wide. The swales are less than 250 feet wide. The somewhat poorly drained Newellton clay, which makes up about 65 percent of the complex, is on the ridges. Its surface layer is dark grayish brown and is 12 to 18 inches thick. It is underlain by silt loam, loam, and silty clay loam. The poorly drained Sharkey clay, which makes up about 35 percent of the complex, is in the swales. This soil is dark-gray clay to a depth of 42 inches or more. It is described under the heading "Sharkey Series." Included in mapping were small areas of Commerce silty clay loam, Tunica soils, Sharkey silty clay loam, and small areas of soils that are medium acid in the surface layer.

The texture, the uneven slopes, and the wetness make management difficult. These soils crack when dry and seal over when wet. They are slightly acid or neutral in the uppermost 10 inches and are neutral to moderately alkaline below that depth. They are low in nitrogen and moderate to high in phosphorus and potassium. Newellton soils have slow permeability and moderate available water capacity. Sharkey soils have very slow permeability and moderate available water capacity. Runoff is medium on the ridges and slow in the swales.

These soils are suited to most of the common crops, but they are not well suited to corn. The swales need drainage. About half of the acreage is woodland. The rest is used for cultivated crops and pasture. (Capability unit IIIw-4; woodland group 3; wildlife group 4)

Oil-Waste Land

Oil-waste land (Ow) has been affected by salt water and oily liquids from oil and gas wells. It is of no value for the commercial production of plants. (Capability unit VIIIs-1; woodland group 7; wildlife group 7)

Robinsonville Series

Soils of the Robinsonville series are well drained. They formed in medium-textured alluvium deposited by the Mississippi River. They occur on the highest parts of the natural levees along Lake Bruin, Lake St. Joseph, and the Mississippi River. The surface layer is dark grayish-brown very fine sandy loam. It is underlain by dark-brown and brown very fine sandy loam over pale-brown fine sandy loam. The Robinsonville soils in this parish are more strongly developed than is typical of the series.

Robinsonville soils are associated with Bruin, Commerce, Crevasse, Newellton, Tunica, and Sharkey soils. They are better drained and are mottle free to a greater depth than Bruin and Commerce soils. They are not so coarse textured as Crevasse soils. They lack the thick clay layers that are characteristic of Newellton, Tunica, and Sharkey soils.

The following profile of Robinsonville very fine sandy loam is on the crest of a ridge in a cultivated field ½ mile northeast of intersection of State Highways 4 and 605, 1,000 feet north of State Highway 608, and 56 feet east of gravel road, NW¼ of Spanish Land Grant in sec. 49, T. 13 N., R. 12 E.

Ap—0 to 8 inches, dark grayish-brown (10YR 4/2) very fine sandy loam; weak, medium and coarse, subangular blocky structure; friable; few fine roots; weak plowpan between a depth of 6 and 8 inches; neutral; abrupt, smooth boundary.

A12—8 to 16 inches, dark-brown (10YR 4/3) very fine sandy loam; weak, coarse, subangular blocky structure; friable; few fine pores in peds; few fine roots; few worm casts of dark grayish-brown very fine sandy loam; neutral; gradual, smooth boundary.

C1—16 to 21 inches, brown (10YR 5/3) very fine sandy loam; weak, medium, subangular blocky structure; very friable; few fine roots; few fine pores in peds; root channels filled with dark grayish-brown very fine sandy loam; few streaks of dark grayish brown; slightly acid; gradual, smooth boundary.

C2—21 to 29 inches, brown (10YR 5/3) very fine sandy loam; weak, medium, subangular blocky structure; loose; few fine roots; few fine pores in peds; few streaks of dark grayish-brown very fine sandy loam; neutral; gradual, smooth boundary.

C3—29 to 36 inches, brown (7.5YR 5/4) very fine sandy loam; weak, medium, subangular blocky structure; very friable; few fine roots; few fine pores in peds; neutral; gradual, smooth boundary.

C4—36 to 45 inches, pale-brown (10YR 6/3) fine sandy loam; weak, medium, subangular blocky structure; loose; few fine roots; few fine pores in peds; neutral; gradual, smooth boundary.

C5—45 to 50 inches, brown (7.5YR 5/4) very fine sandy loam; weak, medium, subangular blocky structure; friable; few fine roots; few fine pores in peds; neutral; gradual, smooth boundary.

C6—50 to 55 inches, dark-brown (10YR 4/3) very fine sandy loam; few, fine, faint, grayish-brown mottles; massive; friable; few very fine roots; few fine pores in peds; moderately alkaline.

The A horizon ranges from dark grayish brown (10YR 4/2) to brown (10YR 5/3) in color and from 4 to 10 inches in thickness. It is very fine sandy loam or fine sandy loam in texture and slightly acid or neutral in reaction. The C horizon ranges from dark brown (10YR 4/3) to pale brown (10YR 6/3) in color and from neutral to moderately alkaline in reaction. It is very fine sandy loam or fine sandy loam in texture.

Robinsonville very fine sandy loam, 1 to 5 percent slopes (RbC).—This soil is well drained. It occurs on ridges of the natural levees along Lake Bruin and Lake St. Joseph. Some of the ridges are short and some are long. Few are more than 250 feet wide. The surface layer is dark grayish brown or dark brown and is about 8 inches thick. It is underlain by dark-brown or brown very fine sandy loam. In places there are strata of fine sandy loam less than 10 inches thick at a depth below 20 inches. Included in mapping were small areas of Bruin silt loam and Commerce silt loam and small areas of soils that are medium acid in the surface layer.

This soil is easy to work and can be cultivated throughout a wide range of moisture content. It is slightly acid or neutral in the surface layer and neutral to moderately alkaline at a depth below 20 inches. It is low in nitrogen and moderate to high in phosphorus and potassium. Runoff is medium, and permeability is moderate. The available water capacity is high.

This soil is suited to most of the common crops. Most of the acreage is used for cultivated crops and pasture. A plowpan frequently forms when the soil is cultivated. Planting crops in rows across the slope helps to control runoff and reduces the erosion hazard. (Capability unit IIe-1; woodland group 1; wildlife group 2)

Sharkey Series

Soils of the Sharkey series are poorly drained. They formed in fine-textured alluvium deposited by the Mississippi River. They occur as wide, nearly level areas at some of the lowest elevations in the parish, mainly in back swamps. The surface layer is dark grayish-brown clay. The subsoil is dark-gray clay mottled with dark yellowish brown. It is underlain by several feet of gray clay mottled with dark yellowish brown.

Sharkey soils are associated with Alligator, Commerce, Mhoon, Newellton, and Tunica soils. They are less acid than Alligator soils and are darker gray to a greater depth. They are finer textured and more poorly drained than Commerce soils. They are finer textured than Mhoon soils. They are clay to a depth of 42 inches or more, in comparison with Newellton and Tunica soils, which are underlain by layers of silt loam, very fine sandy loam, or silty clay loam.

The following describes a typical profile of Sharkey clay in an abandoned field 3 miles southwest of St. Joseph, 100 feet west of gravel road, and 3/4 mile south of railroad, at right corner of quarter section NW1/4NW1/4 sec. 46, T. 11 N., R. 12 E.

Ap—0 to 5 inches, dark grayish-brown (10YR 4/2) clay; weak, fine, granular structure; firm; few root channels filled with very dark grayish brown (10YR 3/2); some fine streaks of dark-gray clay; many fine roots; slightly acid; abrupt, smooth boundary.

A12—5 to 11 inches, dark-gray (10YR 4/1) clay; common, fine, faint, dark yellowish-brown (10YR 4/4) mottles; moderate, fine, angular blocky structure that breaks to very fine angular blocky; firm; many fine roots; slightly acid; clear, smooth boundary.

A13—11 to 17 inches, dark-gray (10YR 4/1) clay; few, fine, faint, dark yellowish-brown (10YR 4/4) mottles; moderate, fine, subangular blocky structure; firm; few fine roots; concentration of dark yellowish-brown (10YR 4/4) mottles around medium-size roots; neutral; gradual, smooth boundary.

A14—17 to 28 inches, dark-gray (10YR 4/1) clay; common, fine, faint, dark yellowish-brown (10YR 4/4) mottles; moderate, fine, subangular blocky structure that breaks to very fine subangular blocky; firm; few blotches of strong brown (7.5YR 5/6); few slickensides 1/4 to 1 inch in size; few fine roots; neutral; gradual, smooth boundary.

A15—28 to 38 inches, dark-gray (10YR 4/1) clay; common, fine, faint, dark yellowish-brown (10YR 4/4) mottles; moderate, coarse, subangular blocky structure that breaks to medium and fine subangular blocky; very firm; few fine blotches of strong brown (7.5YR 5/6); prominent slickensides 3 to 6 inches in diameter; distinct, small lime concretions 2 to 4 millimeters in diameter; very few roots; mildly alkaline; gradual, smooth boundary.

C—38 to 50 inches, gray (10YR 5/1) clay; common, fine, faint, dark yellowish-brown (10YR 4/4) mottles; moderate, medium, subangular blocky structure; very firm; few very fine roots; small iron and manganese concretions; weakly calcareous; moderately alkaline.

The A horizon ranges from very dark gray (10YR 3/1) to dark grayish brown (10YR 4/2) in color and from 15 to 42 inches in thickness. It is silt loam, silty clay loam, or clay in texture. It is slightly acid or neutral in the uppermost 20 inches and is neutral to moderately alkaline below this depth. The C horizon is dark gray (10YR 4/1) and gray (10YR 5/1). It ranges from neutral to moderately alkaline in reaction. It is silty clay or clay in texture. Mottles are dominantly dark yellowish brown (10YR 4/4), dark brown (10YR 4/3), and strong brown (7.5YR 5/6). Slickensides are present but are difficult to identify if the soil is wet.

Sharkey clay (Sc).—This soil is poorly drained. It occurs as broad flats or slight depressions in back swamps. The surface layer is dark gray and is about 6 inches thick. It is underlain by dark-gray clay mottled mostly with dark yellowish brown. The clay extends to a depth of 42 inches or more and in places is gray at a depth below 20 inches. In some places there are layers of silt loam, loam, and silty clay loam at a depth below 36 inches. Included in mapping were areas of Alligator clay, Tunica clay, Sharkey silty clay loam, and small areas of soils that are medium acid in the surface layer.

The soil texture and wetness make cultivation difficult. This soil can be worked within only a narrow range of moisture content. It cracks when dry (fig. 3) and seals over when wet. It becomes cloddy when worked, and seedbed preparation is difficult. This soil is slightly acid or neutral in the uppermost 10 inches and neutral to moderately alkaline below that depth. It is low in nitrogen and moderate to high in phosphorus and potassium. Runoff is slow, and permeability is very slow. The available water capacity is moderate.

Figure 3.—**Sharkey clay. Infiltration into dry, cracked surface is very rapid.**

If drained, this soil is suited to most of the common crops. It is not well suited to corn and Coastal bermudagrass. About 65 percent of the acreage is woodland. The rest is used for cultivated crops and pasture. (Capability unit IIIw–1; woodland group 3; wildlife group 3)

Sharkey silty clay loam (Ss).—This soil is poorly drained. It occurs as small areas, generally no more than 120 acres in size. The surface layer is dark grayish-brown or dark-brown silty clay loam and is 4 to 10 inches thick. It is underlain by dark-gray clay that extends to a depth of 42 inches or more. In places the soil is very dark gray or very dark grayish brown at a depth between 8 and 15 inches. Included in mapping were small areas of Sharkey clay, Tunica soils, and Mhoon silty clay loam, and small areas of soils that are medium acid in the surface layer.

This soil is fairly easy to cultivate but is likely to become cloddy when worked. It is slightly acid or neutral in the surface layer and grades to moderately alkaline at a depth below 24 inches. It is low in nitrogen and moderate to high in phosphorus and potassium. Runoff is slow, and permeability is very slow. The available water capacity is moderate.

This soil is suited to most of the common crops, but it is not well suited to corn. Most of the acreage is used for cultivated crops and pasture. Cropland and pasture need drainage. (Capability unit IIIw–3; woodland group 3; wildlife group 3)

Sharkey silt loam (So).—This poorly drained soil occurs in areas where silt loam was deposited over Sharkey clay. The overwash is 6 to 15 inches thick. The areas are small, generally no more than 100 acres in size. The surface layer is dark grayish-brown silt loam. It is underlain by dark-gray clay or silty clay that extends to a depth of 42 inches or more. Included in mapping were small areas of Commerce silt loam and Sharkey silty clay loam and small areas of soils that are medium acid in the surface layer.

The surface layer of this soil is easy to cultivate if moisture conditions are favorable. The soil is slightly acid or neutral in the surface layer and grades to moderately alkaline at a depth below 18 inches. It is low in nitrogen and moderate to high in phosphorus and potassium. Runoff is slow, and permeability is very slow. The available water capacity is moderate.

This soil is suited to most of the common crops. Most of the acreage is used for cultivated crops. Cropland and pasture need drainage. (Capability unit IIIw–3; woodland group 3; wildlife group 3)

Sharkey clay, overflow (Sf).—This soil is subject to frequent overflow. It occurs in old channels of the Mississippi River, and it is adjacent to the Tensas River. In most years it is covered with water late in fall, in winter, and in spring. The water is 1 foot to 10 feet deep. The surface layer is dark gray and is about 5 inches thick. It is underlain by mottled dark-gray clay that extends to a depth of 42 inches or more. Included in mapping were areas of Alligator clay, small areas of soils that are medium acid in the surface layer, and areas where the surface texture is silt loam or silty clay loam. Also included were areas where the slope is up to 3 percent.

This soil is slightly acid or neutral in the uppermost 20 inches and neutral to moderately alkaline below that depth. It is low in nitrogen and moderate in phosphorus and potassium. Runoff and permeability are very slow. The available water capacity is moderate.

Frequent overflow makes this soil unsuitable for cultivated crops and limits its suitability for pasture. Most of the acreage is woodland. (Capability unit Vw–1; woodland group 3; wildlife group 6)

Tensas Series

Soils of the Tensas series are somewhat poorly drained to poorly drained. They formed in fine-textured alluvium deposited by the Mississippi River. They occur on low natural levees and on long narrow ridges and swales. The surface layer is dark grayish-brown silty clay or silty clay loam. The upper part of the subsoil is grayish-brown clay or silty clay mottled with strong brown and gray. This layer is underlain by grayish-brown clay or silty clay mottled with dark brown and strong brown. Below this is grayish-brown silty clay loam mottled with gray and strong brown and grayish-brown very fine sandy loam.

Tensas soils are associated with Dundee, Goldman, and Alligator soils. They are finer textured than Dundee and Goldman soils and are not so well drained as those soils. They are underlain at a depth of 15 to 30 inches by silt loam, loam, and silty clay loam, in comparison with Alligator soils, which are clay to a depth of 42 inches or more.

The following profile of Tensas silty clay is on the crest of a ridge 2 miles southwest of Delta Bridge and 2¼ miles south-southwest of the intersection of State Highways 3009 and 892, at the southwest corner of NW¼NW¼NE¼ sec. 24, T. 11 N., R. 10 E.

A1—0 to 5 inches, dark grayish-brown (10YR 4/2) silty clay; very dark grayish brown (10YR 3/2) on ped surfaces; common, fine, distinct, yellowish-brown (10YR 5/6) mottles and few, fine, faint, dark yellowish-brown (10YR 4/4) mottles inside peds; strong, coarse, subangular blocky structure adhering to weak, medium, subangular blocky; firm; many roots; few fine pores in peds; medium acid; clear, smooth boundary.

B1t—5 to 10 inches, grayish-brown (10YR 5/2) clay; common, medium, distinct, strong-brown (7.5YR 5/6) mottles and few, fine, faint, gray (10YR 5/1) mottles; strong, medium, subangular blocky structure; firm; many fine roots; few fine pores in peds; few root channels coated with very dark grayish brown; few, patchy clay films; very strongly acid; clear, smooth boundary.

B2t—10 to 21 inches, grayish-brown (10YR 5/2) clay; common, fine, distinct, strong-brown (7.5YR 5/6) mottles and few dark-brown (7.5YR 4/4) mottles; moderate, medium, subangular blocky structure; firm; many fine roots; few fine pores in peds; few root channels coated with very dark brown; continuous clay films; very strongly acid; clear, smooth boundary.

B31t—21 to 25 inches, silty clay loam; gray (10YR 5/1) on outside of peds; grayish brown (10YR 5/2) inside peds; common, medium, distinct, strong-brown (7.5YR 5/6) mottles; moderate, medium, subangular blocky structure; firm; few fine roots; few very fine pores in peds; clay films common; strongly acid; clear, smooth boundary.

IIB32t—25 to 32 inches, grayish-brown (10YR 5/2) very fine sandy loam; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; friable; few fine roots; few very fine pores in peds; few patchy clay films; medium acid; clear, smooth boundary.

IIB33t—32 to 37 inches, grayish-brown (10YR 5/2) light silty clay loam; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; friable; few roots; few patchy clay films; strongly acid; clear, smooth boundary.

IIC—37 to 42 inches, grayish-brown (10YR 5/2) very fine sandy loam; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; friable; few very fine roots; medium acid.

The A horizon ranges from very dark grayish brown (10YR 3/2) to grayish brown (10YR 5/2) in color, from slightly acid to strongly acid in reaction, from 4 to 8 inches in thickness, and from silty clay loam to clay in texture. In some areas the outsides of the peds are very dark gray (10YR 3/1). The B2t horizon is dominantly grayish brown (10YR 5/2) and dark grayish brown (10YR 4/2). This layer ranges from medium to very strongly acid in reaction and from 12 to 30 inches in thickness. It is typically silty clay in texture, but in places it is clay. Mottles are dominantly dark yellowish brown (10YR 4/4), yellowish brown (10YR 5/6), and strong brown (7.5YR 5/6). Clay skins range from few to many in the lower part of the B horizon. The IIB3t horizon ranges from grayish brown (10YR 5/2) to dark grayish brown (10YR 4/2) in color, from slightly acid to very strongly acid in reaction, and from very fine sandy loam to silty clay loam in texture. Stratification is common. Mottles are dominantly dark yellowish brown (10YR 4/4), strong brown (7.5YR 5/6), and gray (10YR 5/1). Below a depth of 30 inches the reaction ranges from strongly acid to slightly acid.

Tensas silty clay (Ta).—This soil is poorly drained. It occurs as small areas, generally no more than 200 acres in size, on low natural levees. The surface layer is dark grayish-brown, sticky silty clay or clay and is about 5 inches thick. It is underlain by dark-gray or grayish-brown, plastic clay. Below this, at a depth between 15 and 30 inches, is silt loam, loam, and silty clay loam. Included in mapping were areas of Alligator clay, Tensas silty clay loam, areas of soils that have a dark-gray or gray B horizon, and small areas of soils that are slightly acid at a depth below 24 inches.

The soil texture and wetness make cultivation difficult. This soil can be worked within only a narrow range of moisture content. It cracks when dry and seals over when wet. It becomes cloddy when worked, and seedbed preparation is difficult. The soil is strongly acid to slightly acid in the surface layer and very strongly acid to slightly acid below this layer. It is low in nitrogen and moderate to low in phosphorus and potassium. Runoff is slow. Permeability is very slow in the clay layers and moderate in the rest of the profile. The available water capacity is moderate.

This soil is suited to most of the common crops, but it is not well suited to cotton, corn, and Coastal bermudagrass. Most of the acreage is woodland. The rest is used for cultivated crops and pasture. Cropland and pasture need drainage. (Capability unit IIIw–2; woodland group 4; wildlife group 3)

Tensas silty clay loam (Tb).—This soil is poorly drained. It occupies low natural levees along small streams and narrow depressions away from the streams. The surface layer is dark grayish brown and is about 6 inches thick. It is underlain by grayish-brown silty clay 10 to 24 inches thick. Below this is light brownish-gray silty clay loam, silt loam, or very fine sandy loam. Included in mapping were small areas of Dundee silty clay loam and Tensas silty clay, and small areas of Tensas silty clay loam where the slope is 1 to 3 percent.

This soil is likely to become cloddy when worked. It is strongly acid to slightly acid in the surface layer and very strongly acid to slightly acid in the rest of the profile. It is low in nitrogen and moderate to low in phosphorus and potassium. Runoff is slow, and permeability is very slow. The available water capacity is moderate.

This soil is suited to most of the common crops, but it is not well suited to corn. Most of the acreage is used for cultivated crops and pasture. Cropland and pasture need drainage. (Capability unit IIIw–2; woodland group 4; wildlife group 3)

Tensas-Alligator clays, gently undulating (TcB).—These soils occupy low parallel ridges and swales. The ridges are 1 to 3 feet high, and few are more than 275 feet wide. The swales are generally no more than 150 feet wide. The somewhat poorly drained Tensas silty clays, which make up about 60 percent of the complex, are on the ridges. Their surface layer is dark grayish-brown silty clay or clay and is about 5 inches thick. It is underlain by grayish-brown clay or silty clay. Below this at a depth of 12 to 30 inches is silt loam, loam, and silty clay loam. The poorly drained Alligator clay, which makes up about 40 percent of the complex, is in the swales. Its surface layer is dark-gray clay and is about 6 inches thick. It is underlain by gray clay that extends to a depth of 42 inches or more. Alligator soils are described under the heading "Alligator Series." Ordinarily, the swales are either very wet or ponded during winter and early in spring. The ridges are somewhat better drained than the swales and can be cultivated earlier in spring. Included in mapping were areas of Dundee silt loam, Sharkey clay, Tensas silty clay loam, and small areas where the slope is up to 5 percent.

The soil texture, the wetness in the swales, and the short irregular slopes make management difficult. These soils can be worked within only a narrow range of moisture content. They crack when dry and seal over when wet. They become cloddy when worked, and seedbed preparation is difficult. These soils are strongly acid to slightly acid in the surface layer and very strongly acid to medium acid in the root zone. They are low in nitrogen and low to moderate in phosphorus and potassium. Runoff is medium on the ridges and slow in the swales. Permeability is very slow. The available water capacity is moderate.

These soils are suited to most of the common crops, but they are not well suited to corn and Coastal bermudagrass. Most of the acreage is woodland. The rest is used for cultivated crops and pasture. Cropland and pasture need drainage. (Capability unit IIIw–5; Tensas in woodland group 4, wildlife group 4; Alligator in woodland group 6, wildlife group 4)

Tensas-Alligator clays, undulating (TcD).—These soils occupy narrow ridges and swales. The ridges are 3 to 8 feet high, and few are more than 225 feet wide. The swales are generally less than 150 feet wide. The poorly drained to somewhat poorly drained Tensas silty clays, which make up about 60 percent of the complex, are on the ridges. They are underlain by silt loam, loam, very fine sandy loam, and silty clay loam at a depth between 13 and 28 inches. The poorly drained Alligator clays, which make up 40 percent of the complex, are in the swales. They are clay or silty clay to a depth of 42 inches or more. Alligator soils are described under the heading "Alligator Series." Included in mapping were small areas of Dundee silt loam and Dundee silty clay loam on the ridges and small areas of Sharkey clay in the swales.

The soil texture, the wetness in swales, and the short irregular slopes make cultivation difficult. These soils can be worked within only a narrow range of moisture content. They crack when dry and seal over when wet. They become cloddy when worked, and seedbed preparation is difficult. The soils are low in nitrogen and low to moderate in phosphorus and potassium. Runoff is medium on the ridges and slow in the swales. Permeability is very slow. The available water capacity is moderate.

These soils are suited to most of the common crops, but they are not well suited to corn and Coastal bermudagrass. A large part of the acreage is woodland. Cropland and pasture need drainage. (Capability unit IIIw–5; Tensas in woodland group 4, wildlife group 4; Alligator in woodland group 6, wildlife group 4)

Tensas-Alligator-Dundee complex, gently undulating (TdB).—These soils occupy low parallel ridges and swales. The ridges are 1 to 3 feet high, and few are more than 300 feet wide. The swales are generally no more than 175 feet wide. The somewhat poorly drained Tensas soils, which make up about 45 percent of the complex, are mostly on the uppermost slopes of the ridges. Their surface layer is dark grayish-brown silty clay, clay, or silty clay loam and is about 5 inches thick. It is underlain by mottled grayish-brown clay or silty clay 10 to 26 inches thick. Below this is stratified silt loam, loam, very fine sandy loam, and silty clay loam. The poorly drained Alligator soils, which make up about 30 percent of the complex, are in the swales. Their surface layer is gray silty clay, clay, or silty clay loam about 5 inches thick. It is underlain by mottled gray clay or silty clay that is 42 inches or more in thickness. Alligator soils are described under the heading "Alligator Series." The somewhat poorly drained Dundee soils, which make up about 25 percent of the complex, are mostly on the crests of the ridges. Their surface layer is dark grayish-brown silt loam or silty clay loam. It is underlain by clay loam or silty clay loam about 10 to 20 inches thick. Below this is silt loam, loam, very fine sandy loam, and silty clay loam. Dundee soils are described under the heading "Dundee Series." Included in mapping were small areas of Goldman very fine sandy loam on the ridges and areas of Sharkey clay in the swales.

The variable soil texture, the wetness in swales, and the short irregular slopes make management difficult. Most of these soils become cloddy when worked, and seedbed preparation is difficult. The soils are strongly acid to slightly acid in the surface layer and very strongly acid to slightly acid in the rest of the profile. They are low in nitrogen and low to moderate in phosphorus and potassium. Runoff is medium on the ridges and slow in the swales. Tensas and Alligator soils have very slow permeability and moderate available water capacity. Dundee soils have moderately slow permeability and high available water capacity.

These soils are suited to most of the common crops, but they are not well suited to corn, cotton, and Coastal bermudagrass. Most of the acreage is used for cultivated crops and pasture. Cropland and pasture need drainage. (Capability unit IIIw–5; Tensas in woodland group 4, wildlife group 4; Alligator in woodland group 6, wildlife group 4; Dundee in woodland group 2, wildlife group 2)

Tensas-Alligator-Dundee complex, undulating (TdD).—These soils occupy parallel ridges and swales. The ridges are 3 to 8 feet high, and few are more than 250 feet wide. The swales are generally no more than 150 feet wide. The somewhat poorly drained Tensas soils, which make up about 47 percent of the complex, are mostly on the uppermost slopes of the ridges. Their surface layer is dark grayish-brown silty clay or clay about 4 inches thick. It is underlain by mottled grayish-brown clay or silty clay about 8 to 20 inches thick. Below this is silt loam, loam, very fine sandy loam, and silty clay loam. The poorly drained Alligator soils, which make up about 33 percent of the complex, are in the swales. Their surface layer is dark-gray clay or silty clay about 5 inches thick. It is underlain by mottled gray clay 42 inches or more thick. Alligator soils are described under the heading "Alligator Series." The somewhat poorly drained Dundee soils, which make up about 20 percent of the complex, are mostly on the crests of the ridges. Their surface layer is silt loam, or silty clay loam about 5 inches thick. It is underlain by clay loam or silty clay loam about 10 to 15 inches thick. Below this is silt loam, very fine sandy loam, loam, and silty clay loam. Dundee soils are described under the heading "Dundee Series." Included in mapping were areas of Sharkey clay in the swales and small areas of Goldman very fine sandy loam on the ridges. Also included were some areas where the percentage of Dundee soils is larger than that of Alligator soils.

The irregular slopes, the narrow wet swales, and the variable surface textures make management difficult. Most of these soils become cloddy when worked, and seedbed preparation is difficult. The soils are strongly acid to slightly acid in the surface layer and very strongly acid to slightly acid in the rest of the profile. They are low in nitrogen and low to moderate in phosphorus and potassium. Runoff is medium on the ridges and slow in the swales. Tensas and Alligator soils have very slow permeability and moderate available water capacity. Dundee soils have moderately slow permeability and high available water capacity.

These soils are suited to most of the common crops, but they are not well suited to corn and Coastal bermudagrass. About half the acreage is used for cultivated crops and pasture. Cropland and pasture need drainage. (Capability unit IIIw–5; Tensas in woodland group 4, wildlife group 4; Alligator in woodland group 6, wildlife group 4; Dundee in woodland group 2, wildlife group 2)

Tunica Series

Soils of the Tunica series are poorly drained. They formed in dark-gray, fine-textured sediments deposited by the Mississippi River. They occur on low ridges and nar-

row, nearly level areas, mainly in the eastern part of the parish. The nearly level areas are adjacent to Sharkey soils. The surface layer is dark grayish-brown clay. The subsoil is dark-gray clay mottled with brown. It is underlain by grayish-brown loam mottled with brown. Below this is grayish-brown silt loam.

Tunica soils are associated with Commerce, Mhoon, Newellton, Robinsonville, and Sharkey soils. They are finer textured and more poorly drained than Commerce and Robinsonville soils. They have thicker clay layers than Mhoon and Newellton soils. They are underlain by loamy material at a depth of 20 to 30 inches, in comparison with Sharkey soils, which are underlain by clay.

The following profile of Tunica clay is in a cultivated field 540 feet east of U.S. Highway 65, 600 feet north of fourth lamp on airstrip on McDonald Farm, Spanish Land Grant 3, T. 13 N., R. 12 E.

Ap—0 to 4 inches, dark grayish-brown (10YR 4/2) light clay; few, fine, faint, dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; firm; many fine roots; slightly acid; abrupt, smooth boundary.

B1—4 to 10 inches, dark grayish-brown (10YR 4/2) clay; dark gray (10YR 4/1) on ped surfaces; many, fine, distinct, dark yellowish-brown (10YR 4/4) mottles inside peds; weak, coarse, prismatic structure adhering to moderate, medium, subangular blocky; firm; many fine roots; slightly acid; clear, smooth boundary.

B2—10 to 21 inches, dark-gray (10YR 4/1) silty clay; common, fine, distinct, dark yellowish-brown (10YR 4/4) mottles and few, fine, faint, dark grayish-brown (10YR 4/2) mottles; strong, medium, subangular blocky structure; firm; few very fine roots; few fine pores in peds; neutral; clear, smooth boundary.

B3—21 to 25 inches, clay; very dark gray (10YR 3/1) on outside of peds; dark gray (10YR 4/1) inside peds with common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; weak, coarse, prismatic structure adhering to moderate, medium, subangular blocky; firm; few fine roots; few fine pores in peds; neutral; gradual, smooth boundary.

IIC1—25 to 32 inches, grayish-brown (10YR 5/2) loam; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; firm; many fine pores in peds; few, soft, dark concretions; moderately alkaline; gradual, smooth boundary.

IIC2—32 to 35 inches, grayish-brown (10YR 5/2) silty clay loam; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; few streaks or blotches of dark gray (10YR 4/1); firm; few fine pores in peds; moderately alkaline; gradual, smooth boundary.

IIC3—35 to 42 inches, gray (10YR 5/1) loam; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; sticky when wet; few, fine, dark, soft concretions; many fine pores in peds; moderately alkaline.

The A horizon ranges from dark grayish brown (10YR 4/2) to dark gray (10YR 4/1) in color and from 4 to 7 inches in thickness. It is slightly acid or neutral in reaction and is silty clay or clay in texture. The B horizon ranges from slightly acid to mildly alkaline in reaction. It is clay or silty clay in texture. The outsides of peds are dark gray (10YR 4/1) except in a few strata where they are very dark gray (10YR 3/1). The insides are dark grayish brown (10YR 4/2) to dark gray (10YR 4/1). The combined thickness of the horizons overlying the IIC horizon ranges from 20 to 34 inches. The IIC horizon is dark grayish brown (10YR 4/2), grayish brown (10YR 5/2), gray (10YR 5/1), and brown (10YR 5/3). It ranges from neutral to moderately alkaline in reaction and from loam to silty clay loam in texture. Stratification is common. Most of the mottles are yellowish brown (10YR 5/6), dark yellowish brown (10YR 4/4), gray (10YR 5/1), dark gray (10YR 4/1), reddish brown (5YR 4/3), and strong brown (7.5YR 5/6).

Tunica clay (Tu).—This soil is poorly drained. It occurs on low natural levees adjacent to Sharkey soils. Most areas are no more than 100 acres in size. The surface layer is dark grayish brown and sticky and is about 5 inches thick. It is underlain by 14 to 16 inches of dark-gray, plastic clay mottled with brown. Below this is grayish-brown silt loam, loam, very fine sandy loam, and silty clay loam. In areas where there are Indian mounds, these soils have very dark gray layers. Included in mapping were small areas of Mhoon silty clay loam, Newellton clay, and Sharkey clay, and small areas of soils that are medium acid in the surface layer. Also included were small areas where the soils have a few blotches and layers of reddish-brown clay at a depth below 20 inches.

This soil can be worked within only a narrow range of moisture content. It cracks when dry and seals over when wet. It becomes cloddy when worked, and seedbed preparation is difficult. The soil is slightly acid or neutral in the surface layer and neutral to moderately alkaline in the rest of the profile. It is low in nitrogen and moderate to high in phosphorus and potassium. Runoff is slow, and permeability is very slow. The available water capacity is moderate.

This soil is suited to most of the common crops. Most of the acreage is used for cultivated crops and pasture. Cropland and pasture need drainage. (Capability unit IIIw-1; wooodland group 3; wildlife group 3)

Use and Management of the Soils

The soils of Tensas Parish are used mainly for cultivated crops, woodland, and pasture. This section explains how the soils can be managed for these main purposes, discusses the use and management of the soils for wildlife, and gives facts about the characteristics of the soils that are significant in building highways, farm ponds, and similar engineering structures. This section also defines the capability classification used by the Soil Conservation Service, in which the soils are grouped according to their suitability for crops, and gives estimates of yields per acre of the principal crops under high-level management.

General Principles of Soil Management

Important practices in managing the soils of Tensas Parish are described in the following paragraphs.

FERTILIZING AND LIMING.—The soils in Tensas Parish range from very strongly acid to moderately alkaline. They are generally low in organic-matter content and in available nitrogen. For the most alkaline soils, which include the Bruin, Commerce, Crevasse, Mhoon, Newellton, Robinsonville, Sharkey, and Tunica soils, nitrogen is normally the only fertilizer needed for all crops except legumes. Generally no nitrogen is needed for legumes. For the more acid soils, which include the Alligator, Dundee, Goldman, and Tensas soils, a fertilizer that includes nitrogen, phosphorus, and potassium is generally needed. Lime may also be needed. The amount of fertilizer needed depends on the crop to be grown, on past cropping history, on the level of yield desired, and on the kind of soil. It should be calculated on the results of soil tests.

MAINTAINING ORGANIC MATTER.—Organic matter is an important source of nitrogen. The supply of organic matter in the soils in this parish can be increased by growing crops that produce an extensive root system and an abundance of foliage (*10*),[1] by leaving plant residue on the soil, by growing perennial grasses and legumes in rotation with other crops, by adding manure, and by applying the proper amounts of lime and commercial fertilizer.

TILLAGE.—Excessive tillage should be avoided. Clods form on some of the cultivated, fine-textured soils, and a compact layer develops in medium-textured soils. This compact layer, generally known as a traffic pan or a plowpan, develops just below plow depth. A compact layer can be destroyed by chiseling or by deep plowing. Using tillage implements that leave enough residue to protect the soil from the beating effect of rain helps to reduce runoff, control erosion, and increase infiltration.

DRAINAGE.—Excess water should be removed from such soils as the poorly drained Alligator, Tunica, and Sharkey soils. In undrained areas planting and cultivation are delayed, adequate stands are difficult to obtain, weeds are difficult to control, crops drown out, yields are generally low, and harvesting is delayed. Large acreages of soils in this parish have been drained. More than 200 miles of canals, laterals, and surface field ditches have been constructed, and drainage has been improved through some of the major streams. The most common method of removing excess water is by open surface ditches and laterals (fig. 4). An adequate, available outlet is needed if a drainage system is to function properly.

CROPPING SYSTEMS.—A good cropping system includes a legume to supply nitrogen, a cultivated crop to aid in weed control, a deep-rooted crop to utilize plant nutrients in the substratum and increase permeability, and a close-growing crop to help maintain the organic-matter content. The sequence of crops should be such that the soil is covered as much of the year as possible. An example of a suitable cropping system is given in the description of each capability unit.

Capability Groups of Soils

Capability classification is the grouping of soils to show, in a general way, their suitability for most kinds of farming. It is a practical classification based on limitations of the soils, the risk of damage when they are used, and the way they respond to treatment. The classification does not apply to horticultural crops or to rice and other crops that have special requirements. The soils are classified according to degree and kind of permanent limitation, but without consideration of major and generally expensive landforming that would change the slope, depth, or other characteristics of the soils; and without consideration of possible but unlikely major reclamation projects.

In the capability system, all kinds of soils are grouped at three levels: the capability class, the subclass, and the unit. These are discussed in the following paragraphs.

CAPABILITY CLASSES, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use, defined as follows:

[1] Italic numbers in parentheses refer to Literature Cited, p. 68.

Figure 4.—**Lateral ditch constructed to remove excess water.**

Class I. Soils have few limitations that restrict their use.

Class II. Soils have moderate limitations that reduce the choice of plants or require moderate conservation practices.

Class III. Soils have severe limitations that reduce the choice of plants, require special conservation practices, or both.

Class IV. Soils have very severe limitations that restrict the choice of plants, require very careful management, or both.

Class V. Soils are subject to little or no erosion but have other limitations, impractical to remove, that limit their use largely to pasture, range, woodland, or wildlife food and cover.

Class VI. Soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife food and cover. None in Tensas Parish.

Class VII. Soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to grazing, woodland, or wildlife. None in Tensas Parish.

Class VIII. Soils and landforms have limitations that preclude their use for commercial plant production and restrict their use to recreation, wildlife, or water supply, or to esthetic purposes.

CAPABILITY SUBCLASSES are soil groups within one class; they are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few limitations. Class V can contain, at the most, only subclasses indicated by *w*, *s*, and *c*, because the soils in it are subject to little or no erosion, though they

have other limitations that restrict their use largely to pasture, range, woodland, wildlife, or recreation.

CAPABILITY UNITS are soil groups within the subclasses. The soils in one capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. Thus, the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally designated by adding Arabic numerals to the subclass symbol, for example, IIw-2 or IIIw-4. Thus, in one symbol, the Roman numeral designates the capability class, or degree of limitation; the small letter indicates the subclass, or kind of limitation, as defined in the foregoing paragraph; and the Arabic numeral specifically identifies the capability unit within each subclass.

In the following pages each of the capability units in Tensas Parish is described, and suggestions for use and management are given.

Capability unit I-1

The soils in this unit are level, somewhat poorly drained to moderately well drained silt loams. They are moderately permeable to moderately slowly permeable and have high available water capacity. They are high in natural fertility.

These soils are well suited to cotton, corn, soybeans, oats, wheat, truck crops, common bermudagrass, Coastal bermudagrass, Pensacola bahiagrass, tall fescue, ryegrass, johnsongrass, dallisgrass, white clover, red clover, Tensas clover, and southern wild winter peas. Hay can generally be harvested from the pastures during periods of peak growth.

These soils are friable and easy to work, and they are fairly easy to keep in good tilth. They are low in nitrogen and moderate to high in phosphorus and potassium. They respond well to nitrogen fertilizer. A suitable cropping system consists of 3 years of cotton followed by 1 year of soybeans.

A plowpan is likely to develop if the soils are cultivated. The pan can be destroyed by chiseling or deep plowing. Controlling runoff to keep excess water from collecting in nearby depressions is advisable. Land leveling or smoothing would improve drainage and increase efficiency in the use of farm equipment, particularly multiple-row equipment.

These soils make up about 4 percent of the parish. Nearly all of the acreage is used for cultivated crops and pasture.

Capability unit I-2

The one soil in this unit, Dundee silt loam, is level and somewhat poorly drained. It is moderately slowly permeable and has high available water capacity. It is moderate in natural fertility.

This soil is well suited to cotton, corn, soybeans, oats, wheat, common bermudagrass, Coastal bermudagrass, dallisgrass, Pensacola bahiagrass, ryegrass, tall fescue, johnsongrass, white clover, red clover, Tensas clover, and southern wild winter peas. Hay generally can be harvested from the pastures during periods of peak growth.

This soil is friable and easy to work, and it is fairly easy to keep in good tilth. It is low in nitrogen and low to moderate in phosphorus and potassium. Scattered spots of droughty soils, called "hot spots," are apparent during dry periods. Crops respond well to fertilization. Lime may be needed. A suitable cropping system consists of 3 years of cotton followed by 1 year of soybeans.

No special management is needed. A plowpan is likely to develop if the soil is cultivated. A pan can be destroyed by chiseling or deep plowing. Controlling runoff to keep excess water from collecting in the nearby depressions is advisable. Land leveling or smoothing would improve drainage and increase efficiency in the use of farm equipment, particularly multiple-row equipment.

This soil makes up 1 percent of the parish. Nearly all of the acreage is used for cultivated crops and pasture.

Capability unit IIe-1

This unit consists of silt loams and a very fine sandy loam. These soils are nearly level to gently sloping and somewhat poorly drained to well drained. They are moderately to moderately slowly permeable and have high available water capacity. They are high in natural fertility. The erosion hazard is moderate.

These soils are well suited to cotton, corn, soybeans, oats, wheat, truck crops, Coastal bermudagrass, common bermudagrass, Pensacola bahiagrass, ryegrass, tall fescue, johnsongrass, white clover, red clover, Tensas clover, and southern wild winter peas. Hay generally can be harvested from the pastures during periods of peak growth.

These soils are friable and easy to work, and they are easy to keep in good tilth. They are low in nitrogen and moderate to high in phosphorus and potassium. They respond well to nitrogen fertilizer. A suitable cropping system consists of 3 years of cotton followed by 3 years of corn or soybeans.

Planting crops in rows across the slope to reduce runoff and erosion is the only special management needed. A plowpan is likely to develop if the soils are cultivated. A pan can be destroyed by subsoiling or deep plowing. Land smoothing would increase efficiency in the use of farm equipment.

These soils make up less than 1 percent of the parish. Most of the acreage is used for cultivated crops and pasture.

Capability unit IIe-2

This unit consists of Bruin-Robinsonville-Crevasse complex, undulating. These soils are on ridges and in swales. They are moderately well drained to well drained and are moderately permeable. Bruin and Robinsonville soils have high available water capacity. All are high in natural fertility. Slopes are irregular. The Crevasse soil is droughty, but is included in this unit because cropping it separately is impractical.

Bruin and Robinsonville soils are well suited to cotton, corn, soybeans, oats, wheat, truck crops, Coastal bermudagrass, common bermudagrass, Pensacola bahiagrass, johnsongrass, ryegrass, tall fescue, white clover, red clover, Tensas clover, and southern wild winter peas.

The soils in this complex are friable, easy to work, and fairly easy to keep in good tilth, but they are somewhat difficult to manage because of the short, irregular slopes. They are low in nitrogen and moderate to high in phosphorus and potassium. They respond well to nitrogen fertilizer. A suitable cropping system consists of 3 years of cotton followed by 3 years of corn or soybeans.

Planting crops in rows across the slope, parallel with the ridges and swales, to reduce runoff and erosion, is the

only special management required. Removing excess water from the swales is advisable. Land leveling and smoothing would improve drainage, reduce erosion, and make it easier to operate farm equipment, especially multiple-row equipment, but a large amount of earth would have to be moved. A plowpan is likely to develop if these soils are cultivated. A pan can be destroyed by chiseling or deep plowing.

These soils make up less than 1 percent of the parish. Most of the acreage is used for cultivated crops and pasture.

Capability unit IIw–1

This unit consists of silty clay loams and a silt loam. These soils are level and are poorly drained to somewhat poorly drained. They are moderately slowly to slowly permeable and have high available water capacity. They are high in natural fertility.

These soils are suited to cotton, corn, soybeans, oats, wheat, common bermudagrass, Coastal bermudagrass, Pensacola bahiagrass, ryegrass, tall fescue, johnsongrass, white clover, and southern wild winter peas. Rice can be grown in all areas except where the percolation rate is too rapid for contour-levee irrigation. Hay generally can be harvested from the pastures during periods of peak growth.

These soils are fairly easy to work and are easy to keep in good tilth, but they are likely to become cloddy when worked. They are low in nitrogen and moderate to high in phosphorus and potassium. They respond well to nitrogen fertilizer. A suitable cropping system consists of 2 years of row crops followed by 1 year of oats or wheat.

Drainage is generally needed. Land leveling or smoothing would improve drainage and increase efficiency in the use of farm equipment, particularly multiple-row equipment.

These soils make up about 1.5 percent of the parish. Nearly all of the acreage is used for cultivated crops and pasture.

Capability unit IIw–2

The one soil in this unit, Dundee silty clay loam, is level and somewhat poorly drained. It is moderately slowly permeable and has high available water capacity. It is moderate in natural fertility.

This soil is suited to cotton, corn, soybeans, oats, wheat, rice, common bermudagrass, Coastal bermudagrass, ryegrass, dallisgrass, tall fescue, Pensacola bahiagrass, white clover, and southern wild winter peas. Hay generally can be harvested from the pastures during periods of peak growth.

This soil is fairly easy to work, but it is likely to become cloddy when worked. Nevertheless, it is fairly easy to keep in good tilth. It is low in nitrogen and low to moderate in phosphorus and potassium. It responds well to fertilization. Lime may be needed. A suitable cropping system consists of 2 years of row crops followed by 1 year of oats or wheat.

Drainage is generally needed. Land leveling or smoothing would improve drainage and increase efficiency in the use of farm equipment, particularly multiple-row equipment.

This soil makes up about 1 percent of the parish. Nearly all of the acreage is used for cultivated crops and pasture.

Capability unit IIw–3

This unit consists of poorly drained to somewhat poorly drained silty clay loams and a silt loam that is moderately well drained but that occurs with the other soils in too intricate a pattern to be managed separately. These soils are on ridges and in swales. They are moderately slowly to slowly permeable and have high available water capacity. They are high in natural fertility. Slopes are irregular.

These soils are suited to cotton, corn, soybeans, oats, wheat, truck crops, common bermudagrass, Coastal bermudagrass, tall fescue, ryegrass, Pensacola bahiagrass, johnsongrass, red clover, white clover, and southern wild winter peas. Cultivation is somewhat difficult because of the short irregular slopes, the narrow wet swales, and the variable surface textures. Hay generally can be harvested from the pastures during periods of peak growth.

These soils are likely to become cloddy when worked. They are somewhat difficult to keep in good tilth. The short irregular slopes make management somewhat difficult. These soils are low in nitrogen and moderate to high in phosphorus and potassium. They respond well to nitrogen fertilizer. A suitable cropping system consists of 2 years of row crops followed by 1 year of oats or wheat.

Controlling runoff from the slopes and removing excess water from the swales are the main management problems. Planting crops in rows across the slope, parallel with the ridges and swales, is advisable. Land leveling and smoothing would improve drainage, reduce the hazard of erosion, and make it easier to operate farm equipment, especially multiple-row equipment, but a large amount of earth would have to be removed. Wetness and soil texture limit the time during the year when the soils in swales can be worked.

The soils in this unit make up about 2 percent of the parish. Nearly all of the acreage is used for cultivated crops and pasture.

Capability unit IIw–4

This unit consists of a clay and a silty clay loam. These soils are nearly level to gently sloping and are somewhat poorly drained. They are slowly permeable and have moderate available water capacity. They are high in natural fertility.

These soils are suited to soybeans, cotton, oats, wheat, common bermudagrass, Coastal bermudagrass, tall fescue, dallisgrass, Pensacola bahiagrass, ryegrass, johnsongrass, white clover, and southern wild winter peas. They are not well suited to corn. Hay can be harvested from the pastures during periods of peak growth.

These soils are difficult to keep in good tilth. They become cloddy when worked. They crack when dry and seal over when wet. These soils are low in nitrogen and moderate to high in phosphorus and potassium. They respond well to nitrogen fertilizer. A suitable cropping system consists of 1 year of soybeans with a cover crop of oats or wheat seeded in fall, another year of soybeans with winter fallow, and then 2 years of row crops.

Controlling runoff and erosion are the main management problems. Planting crops in rows across the slope is advisable. Wetness and soil texture limit the time during the year when these soils can be worked.

These soils make up less than 1 percent of the parish. About 60 percent of the acreage is used for cultivated crops and pasture.

Capability unit IIw-5

The one soil in this unit, Newellton clay, 0 to 1 percent slopes, is level and somewhat poorly drained. It is slowly permeable and has moderate available water capacity. It is high in natural fertility.

This soil is suited to soybeans, oats, wheat, cotton, rice, tall fescue, common bermudagrass, Coastal bermudagrass, dallisgrass, Pensacola bahiagrass, ryegrass, johnsongrass, white clover, and southern wild winter peas. It is not well suited to corn. Hay generally can be harvested from the pastures during periods of peak growth.

This soil is difficult to keep in good tilth. It can be worked within only a fairly narrow range of moisture content. It swells and seals over when wet, becomes hard and cracks when dry, and becomes cloddy when worked. Seedbed preparation is difficult. This soil is low in nitrogen and moderate to high in phosphorus and potassium. It responds well to nitrogen fertilizer. A suitable cropping system consists of 2 or 3 years of row crops followed by 1 or 2 years of oats or wheat.

Drainage is generally needed. Land leveling and smoothing would improve drainage and increase efficiency in the use of farm equipment, but the soil material is difficult to handle.

This soil makes up less than 1 percent of the parish. About 60 percent of the acreage is used for cultivated crops and pasture.

Capability unit IIIw-1

The soils in this unit are level, poorly drained clays. They are very slowly permeable and have moderate available water capacity. They are high in natural fertility.

These soils are well suited to rice. They are suited to soybeans, oats, wheat, cotton, common bermudagrass, dallisgrass, tall fescue, Pensacola bahiagrass, ryegrass, johnsongrass, white clover, and southern wild winter peas. They are not well suited to corn and Coastal bermudagrass. Hay generally can be harvested from the pastures during periods of peak growth.

These soils are difficult to keep in good tilth because of wetness and soil texture. They can be worked within only a narrow range of moisture content. They swell and seal over when wet, become hard and crack when dry, and become cloddy when worked (fig. 5). Seedbed preparation is difficult. These soils are low in nitrogen and moderate to high in phosphorus and potassium. They respond well to nitrogen fertilizer. A suitable cropping system consists of 2 years of row crops followed by 1 year of oats or wheat.

Drainage is needed. Removing excess water is the main management problem. Land leveling and smoothing would improve drainage and increase efficiency in the use of farm equipment, but the soil material is difficult to handle.

These soils make up about 25 percent of the parish. About half of the acreage is woodland, a third is cultivated crops, and the rest is pasture.

Capability unit IIIw-2

This unit consists of a clay, a silty clay, and a silty clay loam. These soils are level and poorly drained. They are very slowly permeable and have moderate available water capacity. They are moderate in natural fertility.

These soils are suited to rice, cotton, soybeans, oats, wheat, common bermudagrass, tall fescue, Pensacola bahiagrass, dallisgrass, johnsongrass, ryegrass, white clover, and southern wild winter peas. They are not well suited to corn and Coastal bermudagrass. Hay generally can be harvested from the pastures during periods of peak growth.

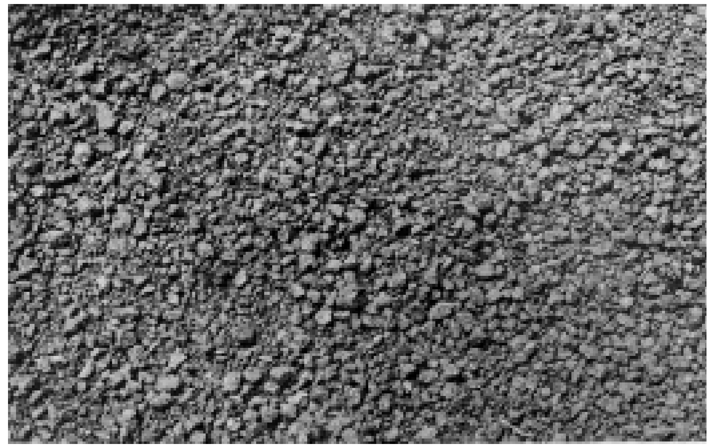

Figure 5.—Cloddy surface of Sharkey clay. Soil has been worked down to small clods commonly called "buckshot."

These soils are difficult to keep in good tilth. They can be worked within only a narrow range of moisture content. They swell and seal over when wet, become very hard and crack when dry, and become cloddy when worked. Seedbed preparation is difficult. These soils are low in nitrogen and low to moderate in phosphorus and potassium. They respond fairly well to fertilization. Lime may be needed. A suitable cropping system consists of 2 years of row crops followed by 1 year of oats or wheat.

Drainage is needed. Removing excess water is the main management problem. Land leveling and smoothing would improve drainage and increase efficiency in the use of farm equipment, but the soil material is difficult to handle.

These soils make up about 9 percent of the parish. Most of the acreage is woodland. The rest is used for cultivated crops and pasture.

Capability unit IIIw-3

This unit consists of a silt loam and a silty clay loam. These soils are level and poorly drained. They are very slowly permeable and have moderate available water capacity. They are high in natural fertility.

These soils are suited to cotton, soybeans, oats, wheat, corn, rice, common bermudagrass, Coastal bermudagrass, ryegrass, tall fescue, Pensacola bahiagrass, johnsongrass, white clover, and southern wild winter peas. Hay generally can be harvested from the pastures during periods of peak growth.

These soils are fairly easy to keep in good tilth. They are low in nitrogen and moderate to high in phosphorus and potassium. They respond well to nitrogen fertilizer. A suitable cropping system consists of 2 or 3 years of row crops followed by 1 or 2 years of oats or wheat.

Removing excess water is the main management problem. Land leveling and smoothing would improve drainage and increase efficiency in the use of farm equipment, particularly multiple-row equipment.

These soils make up less than 1 percent of the parish.

Nearly all of the acreage is used for cultivated crops and pasture.

Capability unit IIIw-4

This unit consists of somewhat poorly drained silty clay loams and poorly drained clays. The silty clay loams are on ridges, and the clays are in swales, but both occur in such an intricate pattern that it is not practical to manage them separately. These soils are very slowly permeable to moderately slowly permeable and have moderate to high available water capacity. They are high in natural fertility. Slopes are irregular. Erosion is a hazard on the ridges.

These soils are suited to cotton, soybeans, oats, wheat, tall fescue, common bermudagrass, Pensacola bahiagrass, ryegrass, johnsongrass, dallisgrass, white clover, and southern wild winter peas. They are not well suited to corn and Coastal bermudagrass. Cultivation of row crops is difficult because of the short irregular slopes, the narrow wet swales, and the variable surface textures. Hay generally can be harvested from the pastures during periods of peak growth.

These soils are difficult to manage because of the texture, wetness, and short irregular slopes. They can be worked within only a narrow range of moisture content. They swell and seal over when wet, become hard and crack when dry, and become cloddy when worked. Seedbed preparation is difficult. These soils are low in nitrogen and moderate to high in phosphorus and potassium. They respond well to nitrogen fertilizer. A suitable cropping system consists of 2 years of row crops followed by 1 year of oats or wheat.

Drainage is needed. Removing excess water from the swales is the main management problem. Planting crops in rows across the slope, parallel with the ridges and swales, would help control runoff and reduce erosion. Land leveling and smoothing would improve drainage, reduce the hazard of erosion, and increase efficiency in the use of farm equipment, especially multiple-row equipment; but a large amount of earth would have to be moved, and the soil material is difficult to handle.

These soils make up about 4.5 percent of the parish. Most of the acreage is used for cultivated crops and pasture.

Capability unit IIIw-5

The soils in this unit are somewhat poorly drained and poorly drained clays. They are very slowly permeable and have moderate available water capacity. They are moderate in natural fertility.

These soils are suited to cotton, soybeans, oats, wheat, common bermudagrass, dallisgrass, ryegrass, johnsongrass, tall fescue, Pensacola bahiagrass, white clover, and southern wild winter peas. They are not well suited to corn and Coastal bermudagrass. Cultivation of row crops is difficult because of the short irregular slopes, the narrow wet swales, and variable textures of the surface layer.

These soils are difficult to manage because of the texture, wetness and short irregular slopes. They can be worked within only a narrow range of moisture content. They swell and seal over when wet, become hard and crack when dry, and become cloddy when worked. Seedbed preparation is difficult. These soils are low in nitrogen and low to moderate in phosphorus and potassium. They respond fairly well to fertilization. Lime may be needed. A suitable cropping system consists of 2 years of row crops followed by 1 year of oats or wheat.

Drainage is needed. Removing excess water from the swales and controlling runoff are the main management problems. Land leveling and smoothing would improve drainage, reduce the hazard of erosion, and make it easier to operate farm equipment, especially multiple-row equipment; but a large amount of earth would have to be moved, and the soil material is difficult to handle. Planting crops in rows across the slope parallel with the ridges and swales would help control runoff and reduce the hazard of erosion.

This unit makes up about 33 percent of the parish. About two-thirds of the acreage is woodland. The rest is used for cultivated crops and pasture.

Capability unit IIIw-6

This unit consists of complexes of soils that range from poorly drained clays to moderately well drained very fine sandy loams. These soils are on ridges and in swales. They are very slowly permeable to moderately permeable and have moderate to high available water capacity. They are moderate in natural fertility. Slopes are irregular.

These soils are suited to soybeans, oats, wheat, cotton, corn, common bermudagrass, Coastal bermudagrass, tall fescue, ryegrass, Pensacola bahiagrass, johnsongrass, white clover, red clover, Tensas clover, and southern wild winter peas. The cultivation of row crops is difficult because of the short irregular slopes, the narrow wet swales, and the variable surface textures. Hay generally can be harvested from the pasture during periods of peak growth.

These soils are low in nitrogen and low to moderate in phosphorus and potassium. They respond well to fertilization. Lime may be needed. A suitable cropping system consists of 2 years of cotton, corn, or soybeans followed by 1 year of oats or wheat.

Drainage is needed. Controlling runoff from the slopes and removing excess water from the swales are the main management problems. Planting crops in rows across the slope, parallel with the ridges and swales, is advisable. Land leveling and smoothing would improve drainage, reduce the hazard of erosion, and make it easier to operate farm equipment, especially multiple-row equipment, but a large amount of earth would have to be moved.

These soils make up about 3 percent of the parish. Nearly all of the acreage is used for cultivated crops and pasture.

Capability unit IVs-1

The one soil in this unit, Crevasse fine sand, 0 to 8 percent slopes, is excessively drained. It has low available water capacity and is rapidly permeable. It is low in natural fertility. Slopes are irregular.

This soil is suited to oats, wheat, truck crops, common bermudagrass, Coastal bermudagrass, and johnsongrass. Corn, cotton, and soybeans can be grown, but yields are uncertain.

This soil is low in nitrogen and moderate to high in phosphorus and potassium. It responds fairly well to nitrogen fertilizer. It is fairly easy to till but dries out quickly after rains and becomes loose when dry. Poor traction in the loose sand makes the operation of farm equipment difficult. Growing crops in winter and spring is advisable because more moisture is likely to be available. A suitable cropping system consists of 2 years of truck crops or other crops followed by 3 years of pasture.

Droughtiness is the main limitation. Land leveling and smoothing would make it easier to operate farm equipment, but a large amount of earth would have to be moved.

This soil makes up less than 1 percent of the parish. Nearly all of the acreage is woodland.

Capability unit Vw-1

The one soil in this unit, Sharkey clay, overflow, is level and poorly drained. It occurs along the Tensas River and in old channels of the Mississippi River. It is subject to overflow and is covered with water for long periods, mainly in winter and spring. This soil is very slowly permeable. It is high is natural fertility.

Because of the frequency and duration of overflow, this soil is not suited to cultivated crops and is not too well suited to pasture grasses. Common bermudagrass generally can be grown successfully.

This soil makes up about 2 percent of the parish. Nearly all of the acreage is woodland.

Capability unit Vw-2

The soils in this unit range from poorly drained clays to excessively drained fine sands. They occur on the river side of the Mississippi River levee and on unprotected islands east of the river. They are subject to deposition and scouring during overflows and to bank cutting by the Mississippi River. They are slightly acid to moderately alkaline.

These soils are not suitable for cultivated crops. They can be grazed only during periods when there is no danger of overflow. Common bermudagrass, dallisgrass, Pensacola bahiagrass, southern wild winter peas, and white clover can be grown in areas where the overflow hazard is not too serious.

These soils make up about 8 percent of the parish. Nearly all of the acreage is woodland. The rest is pasture.

Capability unit VIIIs-1

The one land type in this unit, Oil-waste land, has been affected by salt water and oily liquids from oil and gas wells. It has no value for farming.

Estimated Yields

Table 2 shows estimated yields, under high-level management, for the principal crops grown in Tensas Parish. These are yields averaged over a 10-year period. The estimates are based chiefly on observations made by members of the soil survey party, on information supplied by farmers and other agricultural workers, and on long-term experiments. All estimates are based on average rainfall, adequate drainage, and control of overflow. Irrigation was not considered.

High-level management includes (1) good seedbed preparation, (2) use of suitable, high-yielding crop varieties, (3) fertilization in accordance with the needs determined through soils tests, (4) control of insects, weeds, and plant diseases, (5) drainage for naturally wet soils, and (6) measures for control of overflow and erosion.

TABLE 2.—*Estimated average acre yield of principal crops under high-level management*

[Absence of figure indicates crop is not commonly grown]

Soil	Cotton	Soybeans	Corn	Wheat	Oats	Rice	Tall fescue and legumes	Coastal bermudagrass	Common bermudagrass	Dallisgrass
	Lb. of lint	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*A.U.M.*[1]	*A.U.M.*[1]	*A.U.M.*[1]	*A.U.M.*[1]
Alligator clay, 0 to 1 percent slopes	450	28	40	24	43	85	8.0	8.5	7.0	5.5
Alligator clay, gently undulating	425	26	37	20	40	------	7.5	8.0	6.5	5.0
Alligator clay, undulating	400	25	33	19	35	------	7.0	7.5	6.0	5.0
Bruin silt loam, 0 to 1 percent slopes	875	37	90	35	65	------	9.0	12.0	8.5	6.5
Bruin silt loam, 1 to 3 percent slopes	850	36	85	34	60	------	9.0	12.0	8.5	6.5
Bruin-Mhoon complex, gently undulating:										
Bruin	825	36	80	34	60	------	9.0	12.0	8.5	6.5
Mhoon	600	32	50	25	45	------	8.5	9.0	8.0	6.0
Bruin-Robinsonville-Crevasse complex, undulating:										
Bruin	825	36	85	34	60	------	9.0	12.0	8.5	6.5
Robinsonville	775	35	80	30	60	------	9.0	12.0	8.5	6.5
Crevasse	300	15	27	20	45	------	--------	7.5	4.5	---------
Clayey alluvial land and Sharkey clay, overflow, 0 to 5 percent slopes	------	--------	------	------	------	------	--------	--------	--------	---------
Commerce silt loam, 0 to 1 percent slopes	850	37	90	35	65	------	9.0	12.0	8.5	6.5
Commerce silt loam, 1 to 3 percent slopes	825	37	85	34	60	------	9.0	12.0	8.5	6.5
Commerce silty clay loam, 0 to 1 percent slopes	800	37	80	35	55	------	9.0	10.5	8.0	6.5
Commerce silty clay loam, gently undulating	750	35	75	32	50	------	9.0	9.5	8.0	6.5
Crevasse fine sand, 0 to 8 percent slopes	300	15	27	20	45	------	--------	7.5	4.5	---------
Crevasse fine sand, overflow, 0 to 8 percent slopes	------	--------	------	------	------	------	--------	--------	--------	---------

TABLE 2.—*Estimated average acre yield of principal crops under high-level management*—Continued

Soil	Cotton	Soybeans	Corn	Wheat	Oats	Rice	Tall fescue and legumes	Coastal bermudagrass	Common bermudagrass	Dallisgrass
	Lb. of lint	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*A.U.M.*[1]	*A.U.M.*[1]	*A.U.M.*[1]	*A.U.M.*[1]
Dundee silt loam	725	32	80	32	60	---	9.0	11.0	8.5	6.0
Dundee silty clay loam	725	30	70	30	50	---	9.0	10.0	8.0	6.0
Dundee-Tensas-Goldman complex, gently undulating:										
Dundee	675	30	70	30	50	---	9.0	10.0	8.0	6.0
Tensas	400	27	40	20	37	---	8.0	8.0	6.5	5.5
Goldman	525	25	55	25	50	---	---	9.5	7.5	---
Dundee-Goldman-Tensas complex, undulating:										
Dundee	700	30	70	30	50	---	9.0	10.0	8.0	6.0
Goldman	525	25	55	25	50	---	---	9.5	7.5	---
Tensas	400	27	40	20	37	---	7.5	8.0	6.5	5.5
Loamy alluvial land and Robinsonville soils, overflow, 0 to 5 percent slopes	---	---	---	---	---	---	---	---	---	---
Mhoon silt loam	675	35	60	30	50	---	9.0	10.5	8.5	6.0
Mhoon silty clay loam	600	32	50	25	45	85	9.0	9.0	8.0	6.0
Newellton clay, 0 to 1 percent slopes	650	35	65	30	50	85	9.0	9.5	8.0	6.0
Newellton clay, 1 to 5 percent slopes	525	30	55	20	40	---	8.5	9.0	7.5	6.0
Newellton silty clay loam, 1 to 3 percent slopes	675	35	60	30	50	---	9.0	10.0	8.0	6.5
Newellton-Commerce-Tunica complex, undulating:										
Newellton	600	33	60	30	50	---	9.0	10.0	8.0	6.5
Commerce	750	35	85	35	60	---	9.0	12.0	8.5	6.5
Tunica	550	32	55	27	45	---	8.5	8.5	7.0	6.0
Newellton-Mhoon silty clay loams, gently undulating:										
Newellton	600	34	60	30	50	---	9.0	10.0	8.0	6.5
Mhoon	575	30	45	23	43	---	8.5	9.0	8.0	6.0
Newellton-Sharkey clays, undulating:										
Newellton	575	30	55	20	40	---	8.0	8.0	7.5	6.0
Sharkey	475	27	45	22	35	---	8.5	8.5	7.0	5.5
Oil-waste land	---	---	---	---	---	---	---	---	---	---
Robinsonville very fine sandy loam, 1 to 5 percent slopes	775	35	85	30	60	---	9.0	12.0	8.5	6.5
Sharkey clay	575	35	50	25	45	90	9.0	9.0	7.5	6.0
Sharkey clay, overflow	---	---	---	---	---	---	---	---	---	---
Sharkey silt loam	625	35	55	27	50	85	9.0	9.5	8.0	6.5
Sharkey silty clay loam	600	35	53	25	47	90	9.0	9.0	7.5	6.0
Tensas silty clay	525	30	42	25	43	85	8.5	8.5	7.0	5.5
Tensas silty clay loam	550	33	45	25	45	85	8.5	9.0	7.5	6.0
Tensas-Alligator clays, gently undulating:										
Tensas	475	28	40	23	41	---	8.5	8.0	6.5	5.5
Alligator	400	24	35	20	35	---	7.0	7.5	6.0	4.5
Tensas-Alligator clays, undulating:										
Tensas	450	27	38	22	39	---	8.0	8.0	6.5	6.0
Alligator	375	22	32	19	33	---	6.5	7.0	5.5	4.0
Tensas-Alligator-Dundee complex, gently undulating:										
Tensas	450	28	40	23	41	---	8.5	8.5	6.5	6.0
Alligator	400	24	35	20	35	---	7.5	7.5	6.0	4.5
Dundee	700	29	65	28	45	---	8.5	9.5	7.5	6.0
Tensas-Alligator-Dundee complex, undulating:										
Tensas	425	26	38	21	39	---	8.0	8.0	6.5	6.0
Alligator	375	22	32	19	33	---	7.0	7.0	5.5	4.0
Dundee	675	28	60	27	42	---	8.5	9.5	7.5	6.0
Tunica clay	600	35	60	30	50	85	9.0	9.0	7.5	6.0

[1] Animal-unit-month is a term used to express the carrying capacity of pasture. It is the number of animal units carried per acre, multiplied by the number of months the pasture is grazed during a single grazing season without injury to the sod. An acre of pasture that provides 2 months of grazing for 2 cows has a carrying capacity of 4 animal-unit-months.

Woodland [2]

Commercial forest covers about half of Tensas Parish. The acreage has been decreasing each year, as additional acreage is cleared for cropland and pasture.

Three forest cover types are represented in the parish. The two more extensive are the white oak-red oak-hickory type and the sweetgum-water oak type. Both pure and mixed stands occur within these forest types, but mixed stands are predominant. Less extensive is the riverfront hardwood type, in which cottonwood and willow are the main species.

Southern hardwoods, including cottonwood, black willow, sweetgum, cherrybark oak, willow oak, water oak, Nuttall oak, overcup oak, hackberry, sycamore, ash, red maple, pecan, elm, and baldcypress (fig. 6), are the principal commercial species. Sawlogs, pulpwood, veneer logs, and specialty products are harvested. There are local markets for pulpwood and saw timber.

The soils of Tensas Parish have been assigned to seven woodland suitability groups. Each group consists of soils that are suited to the same kinds of trees, that require the same management, and that have about the same potential productivity. To find the woodland suitability classification for any given soil, refer to the "Guide to Mapping Units."

Table 3 (p. 30) gives a description of each woodland group, the degrees of soil-related hazards and limitations that affect management, the potential productivity of each group for important species, the species to be favored in existing stands (*3*), and the species to be preferred for planting. The interpretations shown in table 3 are explained in the paragraphs that follow.

The equipment limitation is *slight* if there are no restrictions on the type of equipment or on the time of year that the equipment can be used. The limitation is *moderate* if the use of equipment is restricted by seasonal wetness or other unfavorable soil characteristics. The limitation is *severe* if special equipment is needed or if the use of equipment is severely restricted by seasonal wetness or other unfavorable soil characteristics.

Seedling mortality refers to the expected loss of naturally occurring or planted seedlings, as a result of unfavorable soil characteristics. Mortality is *slight* if the expected loss is less than 25 percent; it is *moderate* if the expected loss is between 25 and 50 percent; and it is *severe* if the expected loss is more than 50 percent.

Plant competition refers to invasion by or growth of undesirable species when openings are made in the canopy. Competition is *slight* if invaders do not prevent adequate regeneration and early growth and do not interfere with the development of planted seedlings. It is *moderate* if the invaders delay but do not prevent the establishment of a normal, fully stocked stand. Competition is *severe* if invaders prevent adequate regeneration or if intensive site preparation and maintenance are needed.

The potential productivity of a soil for a given species is commonly expressed as site index. It is the height in feet that the dominant trees of a given species, growing on a specified soil, will reach at a specified age. The site index for cottonwood is based on height at 30 years of age, and that for all other species on height at 50 years of age. On the basis of the site index, rates of growth and total yields can be calculated. Table 3 shows the estimated annual growth in board feet (Doyle rule) for each site index.

[2] WILLIAM M. CLARK, woodland conservationist, Soil Conservation Service, helped prepare this section.

Figure 6.—**Good stand of baldcypress on Alligator clay. This soil is in woodland group 6.**

Engineering Uses [3]

Some soil properties are of special interest to engineers because they affect the construction and maintenance of roads, airports, pipelines, building foundations, facilities for water storage, erosion control structures, drainage systems, and sewage disposal systems. The properties most important to engineers are permeability, shear strength, compaction characteristics, drainage, shrink-swell characteristics, particle size, plasticity, and acidity or alkalinity. Depth to the water table, depth to bedrock, and topography also are important.

The information in this publication can be used to—

1. Make studies that will aid in selecting and developing industrial, business, residential, and recreational sites.
2. Make preliminary evaluations that will aid in selecting locations for highways, pipelines, airports, and cables, and in planning detailed investigations at the selected locations.

[3] LESTER L. LOFTIN, assistant State soil scientist, SCS, and H. J. FOREMAN, assistant State conservation engineer, SCS, helped prepare this section.

TABLE 3.—*Woodland groups*

[Refer to "Guide to Mapping Units" to find woodland classification for any given soil]

Woodland groups	Limitations and hazards affecting management			Species to be preferred—		Pote
	Equipment limitation	Seedling mortality	Plant competition	In existing stands [1]	For planting	Important species
Group 1. Level to undulating, somewhat poorly drained to well-drained, moderately permeable to moderately slowly permeable, medium-textured to moderately fine textured soils that are slightly acid to moderately alkaline.	Slight [4]	Slight [4]	Severe	Green ash, cottonwood, baldcypress, hackberry, water oak, pecan, sweetgum, sycamore, and black willow.	Cottonwood, sweetgum, and sycamore.	Cottonwood. Cherrybark oak. Water oak Willow oak Sweetgum
Group 2. Level to undulating, somewhat poorly drained to moderately well drained, moderately permeable to moderately slowly permeable, medium-textured to moderately fine textured soils that are slightly acid to very strongly acid.	Slight	Slight [5]	Severe	Cottonwood, cherrybark oak, Nuttall oak, water oak, willow oak, pecan, sweetgum, sycamore, and swamp chestnut oak.	Cottonwood, cherrybark oak, Nuttall oak, sweetgum, and sycamore.	Cottonwood. Cherrybark oak. Water oak Willow oak Sweetgum
Group 3. Somewhat poorly drained to poorly drained, slowly permeable to very slowly permeable, fine-textured to medium-textured soils that are slightly acid to moderately alkaline.	Moderate [6]	Moderate	Severe	Green ash, baldcypress, cottonwood, red maple, cherrybark oak, Nuttall oak, water oak, willow oak, persimmon, sweetgum, sycamore, and hackberry.	Green ash, baldcypress, cottonwood, Nuttall oak, sweetgum, and sycamore.	Cottonwood Cherrybark oak. Water oak Willow oak Sweetgum

Group 4. Level to undulating, poorly drained to somewhat poorly drained, very slowly permeable, moderately fine textured to fine textured soils that are very strongly acid to slightly acid.	Moderate	Moderate	Severe	Cottonwood, Nuttall oak, water oak, willow oak, sweetgum, cherrybark oak, and sycamore.	Cottonwood, Nuttall oak, and sycamore.	Cottonwood Cherrybark oak. Water oak Willow oak Sweetgum
Group 5. Level to undulating, excessively drained, rapidly permeable, coarse-textured soils that are slightly acid to moderately alkaline.	Moderate [7]	Moderate to severe.	Moderate	Green ash, cottonwood, hackberry, pecan, sycamore, and sweetgum.	Cottonwood, sweetgum, and sycamore.	Cottonwood Cherrybark oak. Water oak Willow oak Sweetgum
Group 6. Level to undulating, poorly drained, very slowly permeable, fine-textured soils that are slightly acid to very strongly acid.	Moderate [8]	Moderate	Severe	Green ash, baldcypress, cottonwood, red maple, Nuttall oak, water oak, willow oak, and sweetgum.	Green ash, Nuttall oak, baldcypress, cottonwood, and sweetgum.	Cherrybark oak. Water oak Willow oak Sweetgum
Group 7. Soils not suited to commercial production of timber.						

[1] Information based on data compiled by South. Forest Expt. Sta., U.S. Forest Serv. (*3*).

[2] Information provided by Walter M. Broadfoot, soil scientist, U.S. Dept. Agr. Forest Serv., South. Hardwoods Lab., Stoneville, Miss., in cooperation with Miss. Agr. Expt. Sta. and South. Hardwood Forest Res. Group. Each site index is the midpoint of an approximate range of 10. Thus, the range for a given site index of 100 is approximately 95 to 105.

[3] Average yearly growth in board feet (Doyle rule) for well-stocked, managed stands; cottonwood to age 30, other species to age 60 (*15*). Supplemental data rom soil-site evaluations by the Soil Conservation Service and cooperating agencies. The value is the midpoint in an undetermi

[4] Severe on Loamy alluvial land and Robinsonville water.

[5] Moderate on Goldman soils of the Dundee-Gold

[6] Severe on Clayey alluvial land and Sharkey cla clay, during periods of overflow.

[7] Severe on Crevasse fine sand, overflow, 0 to 8 pe of overflow.

[8] Severe during periods of overflow.

TABLE 4.—*Engineering*

[Tests performed by the Louisiana Department of Highways in accordance with

Soil name and location	Louisiana report number	Depth	Horizon	Mechanical analysis [1]: Percentage passing sieve [2]: No. 40 (0.42 mm.)	No. 200 (0.074 mm.)	Percentage smaller than [2]: 0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.	Liquid limit
		In.								*Pct.*
Alligator clay: 50 feet north of State Highway 566, 6 miles west of Waterproof, SW¼NE¼ sec. 31, T. 10 N., R. 10 E.	R-6051	1 to 6	A12	100	99	98	83	67	56	65
	R-6052	20 to 30	C2	100	100	99	83	65	53	63
Bruin silt loam: 2,500 feet NW. of intersection of State Highways 605 and 608, sec. 17, T. 12 N., R. 12 E.	R-4879	0 to 7	Ap	100	91	74	33	16	14	------
	R-4880	18 to 24	B3	100	83	68	29	18	14	------
Commerce silt loam: 1,050 feet east of old U.S. Highway 65, NE. of La. Agr. Expt. Sta., NE¼NW¼ sec. 35, T. 11 N., R. 12 E.	R-4868	0 to 6	Apl	100	87	74	35	16	12	------
	R-4869	10 to 19	B2	100	94	91	68	44	35	46
	R-4870	25 to 32	C1	100	94	81	43	27	22	25
Crevasse fine sand: 200 feet NW. of Watershed bench mark, 8 miles east of St. Joseph, T. 13 N., R. 13 E.	R-6053	0 to 5	Ap	100	9	8	4	3	2	-------
	R-6054	23 to 60	C3	100	5	4	3	3	2	-------
Dundee silt loam: 800 feet north and 360 feet west of intersection of State Highways 566 and 3044, sec. 39, T. 10 N., R. 10 E.	R-4871	0 to 5	Apl	100	80	59	26	19	17	-------
	R-4872	8 to 15	B21t	100	91	77	49	38	33	41
	R-4873	41 to 53	C2	100	80	64	32	20	18	-------
Newellton clay: 275 feet west of State Highway 608, 400 feet north of drainage ditch, SE¼SE¼ sec. 45, T. 13 N., R. 12 E.	R-4881	4 to 14	C1	100	99	99	92	77	60	69
	R-4882	23 to 32	C4	98	97	93	47	24	20	24
Robinsonville very fine sandy loam: 1,000 feet north of State Highway 608, 56 feet east of gravel road, NW¼ sec. 49, T. 13 N., R. 12 E.	R-4877	8 to 16	A12	100	93	70	27	16	14	-------
	R-4878	21 to 29	C2	100	47	28	10	9	8	-------
Sharkey clay: 30 feet north of gravel road, 174 feet west of railroad, SW¼SE¼ sec. 25, T. 11 N., R. 11 E.	5-44548	0 to 4	Ap	100	99	91	86	79	68	62
	5-44549	4 to 28	C1	100	99	96	91	80	67	59
	5-44550	28 to 42	C2	100	99	90	83	70	57	56

[1] Mechanical analysis according to AASHO Designation: T 88-57 (*1*). Results by this procedure may differ somewhat from results obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHO procedure, the fine material is analyzed by the hydrometer method and the various grain-size fractions are calculated on the basis of all the material, including that coarser than 2 millimeters in diameter. In the SCS soil survey procedure, the fine material is analyzed by the pipette method and the material coarser than 2 millimeters in diameter is excluded from calculations of grain-size fractions. The mechanical analysis data in this table are not suitable for use in naming textural classes for soil.

test data

standard procedures of the American Association of State Highway Officials (AASHO)]

Plasticity index	Physical characteristics: Shrinkage: Limit	Shrinkage: Ratio	Moisture-density data [3]: Maximum dry density	Optimum moisture content for maximum dry density	Moisture content for 95 percent of maximum dry density	Textural class: USDA	Louisiana department of highways	Classification: AASHO	Unified [4]
			Lb./cu. ft.	*Pct.*	*Pct.*				
36	6.2	1.93	91.5	28.0	22.5 to 31.6	Silty clay	Heavy clay	A-7-6(20)	CH.
38	14.5	2.02	91.5	28.0	22.5 to 31.6	Silty clay	Heavy clay	A-7-6(20)	CH.
[5] NP	(6)	(6)	106.1	16.0	12.8 to 20.6	Silt loam	Silty loam	A-4(8)	ML.
NP	(6)	(6)	106.1	16.0	12.8 to 20.6	Silt loam	Silty loam	A-4(8)	ML.
NP	(6)	(6)	106.1	16.0	13.0 to 20.6	Silt loam	Silty loam	A-4(8)	ML.
26	13	1.90	102.0	20.6	14.4 to 24.5	Silty clay loam.	Silty clay	A-7-6(16)	CL.
8	17	1.77	101.0	20.4	6.0 to 24.1	Silt loam	Silty clay loam.	A-4(8)	CL.
NP	(6)	(6)	102.8	12.4	<8 to 17.3	Sand	Sand	A-3(0)	SP-SM.
NP	(6)	(6)	101.0	15.4	<10 to 19.6	Sand	Sand	A-3(0)	SP-SM.
NP	(6)	(6)	106.1	16.0	12.8 to 20.6	Loam	Silty loam	A-4(8)	ML.
19	14	1.85	102.0	20.6	14.4 to 24.5	Clay loam	Silty clay	A-7-6(12)	CL.
NP	(6)	(6)	101.0	20.4	<10.0 to 24.1	------------	Silty clay loam.	A-4(8)	ML.
45	5	2.20	85.4	32.4	<24.0 to 36.2	Clay	Heavy clay	A-7-6(20)	CH.
6	14	1.88	101.0	20.4	<10.0 to 24.1	Silt loam	Silty clay loam.	A-4(8)	ML-CL.
NP	(6)	(6)	106.1	16.0	12.8 to 20.6	Silt loam	Silty loam	A-4(8)	ML.
NP	(6)	(6)	110.8	15.0	10.2 to 18.4	Sandy loam	Sandy loam	A-4(4)	SM.
31	11	1.94	86.6	32.0	26.6 to 35.2	Clay	Heavy clay	A-7-5(20)	MH-CH.
36	9	2.29	86.6	32.0	26.6 to 35.2	Clay	Heavy clay	A-7-6(20)	CH.
34	8	2.07	86.6	32.0	26.6 to 35.2	Clay	Heavy clay	A-7-6(19)	CH.

[2] Based on material passing 3-inch sieve. Laboratory test data not corrected for amount discarded larger than 3 inches in diameter.
[3] Based on AASHO Designation: T 99-57, Method A (*1*).
[4] Soil Conservation Service and Bureau of Public Roads have agreed to consider that all soils having plasticity indexes within 2 points of A-line are to be given a borderline classification. Examples of borderline classification obtained by this use are MH-CH and SP-SM.
[5] Nonplastic.
[6] Not significant.

TABLE 5.—*Estimated*

Soil names and map symbols	Depth from surface (typical profile)	Classification		
		USDA texture	Unified	AASHO
	In.			
Alligator clay (AcA, AgB, AgD).	0 to 48	Clay or silty clay	CH	A–7–6(20)
Bruin silt loam (BaA, BaB, BmB, BrC). For properties of Mhoon part of BmB, see Mhoon silty clay loam.	0 to 34	Silt loam	ML	A–4(4–8)
For properties of Robinsonville part of BrC, see Robinsonville very fine sandy loam. For properties of Crevasse part of BrC, see Crevasse fine sand.	34 to 48	Silt loam or very fine sandy loam.	ML or SM	A–4(2–8)
Clayey alluvial land and Sharkey clay (ChC). For properties of Sharkey part of ChC, see Sharkey clay.	0 to 48	Clay, silty clay loam, and silt loam.	CH, CL and ML.	A–7–6, A–6, and A–4.
Commerce:				
Silt loam (CmA, CmB).	0 to 10	Silt loam	ML	A–4(4–8)
	10 to 19	Silty clay loam	CL	A–7–6 or A–6
	19 to 48	Silt loam or silty clay loam	ML or CL	A–4, A–6, or A–7–6
Silty clay loam (CnA, CoB).	0 to 8	Silty clay loam	CL	A–7–6 or A–6
	8 to 48	Silt loam or silty clay loam	ML or CL	A–4, A–6, or A–7–6
Crevasse fine sand (CrD, CsD).	0 to 48	Fine sand or loamy fine sand	SP–SM or SM.	A–3(0) or A–2–4(0).
Dundee:				
Silt loam (Dd, DgD, DtB). For properties of Tensas part of DgD and DtB, see Tensas silty clay.	0 to 8	Silt loam or loam	ML	A–4(4–8)
For properties of Goldman part of DgD and DtB, see Goldman very fine sandy loam.	8 to 23	Clay loam	CL	A–7–6 or A–6
	23 to 48	Very fine sandy loam or silt loam.	ML or CL	A–4 or A–6
Silty clay loam (De).	0 to 25	Silty clay loam	CL	A–6 or A–7–6
	25 to 48	Silt loam or silty clay loam	ML or CL	A–6 or A–7–6
Loamy alluvial land and Robinsonville soils (LrC). For properties of Robinsonville part of LrC, see Robinsonville very fine sandy loam.	0 to 48	Silt loam, silty clay loam, and very fine sandy loam.	ML and CL	A–4 and A–6
Goldman very fine sandy loam.	0 to 5	Very fine sandy loam or fine sandy loam.	ML or SM	A–4(0–8)
	5 to 18	Loam or very fine sandy loam.	ML or SM	A–4(4–8)
	18 to 48	Fine sandy loam or very fine sandy loam.	SM or ML	A–4(0–8)
Mhoon:				
Silt loam (Mh).	0 to 6	Silt loam	ML	A–4(4–8)
	6 to 15	Silty clay loam or silty clay	CL or CH	A–7–6 or A–6
	15 to 48	Silty clay loam, silty clay, or silt loam.	CL or CH	A–7–6 or A–6
Silty clay loam (Mo).	0 to 6	Silty clay loam	CL	A–6 or A–7–6
	6 to 15	Silty clay loam or silty clay	CL or CH	A–7–6 or A–6
	15 to 48	Silty clay loam, silty clay, or silt loam.	CL or CH	A–7–6 or A–6
Newellton:				
Clay (NcA, NcC, NtC, NyC).	0 to 14	Clay	CH	A–7–6(20)
For properties of Commerce part of NtC, see Commerce silt loam. For properties of Tunica part of NtC, see Tunica clay. For properties of Sharkey part of NyC, see Sharkey clay.	14 to 48	Silt loam, silty clay loam, or very fine sandy loam.	ML or CL	A–4 or A–6

properties of soils

Percentage passing sieve—		Permeability	Available water capacity	Reaction	Shrink-swell potential	Percolation rate	Depth to and duration of seasonal high water table
No. 40 (0.42 mm.)	No. 200 (0.074 mm.)						
		In./hr.	*In./in.*	*pH*		*Min./in.*	
100	95 to 100	<0.2	0.19	5.0 to 6.5	Very high.	<75	Less than 15 inches for 2 to 6 months per year.
100	85 to 95	0.63 to 2.0	0.23	6.0 to 7.0	Low.	>45	30 to 60 inches for 2 to 6 months per year.
100	80 to 95	0.63 to 2.0	0.21 to 0.23	7.5 to 8.0	Low.		
100	85 to 100	<0.2	0.19 to 0.23	7.0 to 8.0	Moderate to very high.	<75	Less than 15 inches for 2 to 6 months per year.
100	85 to 95	0.63 to 2.0	0.23	6.0 to 7.0	Low.	45 to 75	15 to 30 inches for 2 to 6 months per year.
100	85 to 100	0.2 to 0.63	0.21	6.5 to 7.5	Moderate.		
100	85 to 100	0.2 to 2.0	0.23 to 0.21	7.0 to 8.0	Low to moderate.		
100	85 to 100	0.2 to 0.63	0.21	6.0 to 7.0	Moderate.	45 to 75	15 to 30 inches for 2 to 6 months per year.
100	85 to 100	0.2 to 2.0	0.23 to 0.21	6.5 to 8.0	Low to moderate.		
75 to 90	20 to 50	>6.3	0.06 to 0.1	6.0 to 8.0	Low.	>45	30 to 60 inches for 2 to 6 months per year.
100	75 to 90	0.63 to 2.0	0.23	5.5 to 6.5	Low.	45 to 75	15 to 30 inches for 2 to 6 months per year.
100	85 to 100	0.2 to 0.63	0.17	5.0 to 6.0	Moderate.		
100	75 to 90	0.2 to 2.0	0.23 to 0.21	5.0 to 6.5	Low.		
100	90 to 100	0.2 to 0.63	0.21	5.5 to 6.5	Moderate.	45 to 75	15 to 30 inches for 2 to 6 months per year.
100	90 to 100	0.2 to 2.0	0.23 to 0.21	5.0 to 6.5	Low to moderate.		
95 to 100	60 to 95	0.2 to 2.0	0.21 to 0.23	6.5 to 8.0	Low to moderate.	45 to 75	15 to 30 inches for 2 to 6 months per year.
80 to 100	45 to 95	0.63 to 2.0	0.22 to 0.14	5.5 to 6.5	Low.	>45	60 to 120 inches for 2 to 6 months per year.
85 to 100	60 to 75	0.63 to 2.0	0.18 to 0.22	5.0 to 6.0	Low.		
80 to 100	40 to 90	0.63 to 2.0	0.14 to 0.22	5.0 to 6.0	Low.		
100	85 to 95	0.63 to 2.0	0.23	6.0 to 7.0	Low.	<75	Less than 15 inches for 2 to 6 months.
100	90 to 100	<0.2 to 0.63	0.19 to 0.23	6.5 to 7.5	Moderate to high.		
100	85 to 100	<0.2 to 0.63	0.19 to 0.23	7.0 to 8.0	Low to high.		
100	90 to 100	0.2 to 0.63	0.21	6.0 to 7.0	Moderate.	<75	Less than 15 inches for 2 to 6 months per year.
100	90 to 100	<0.2 to 0.63	0.19 to 0.23	7.0 to 8.0	Moderate to high.		
100	85 to 100	<0.2 to 0.63	0.19 to 0.23	7.5 to 8.0	Low to high.		
100	95 to 100	<0.2	0.19	6.0 to 7.0	Very high.	45 to 75	15 to 30 inches for 2 to 6 months per year.
100	60 to 100	0.2 to 2.0	0.21 to 0.23	7.0 to 8.0	Low to moderate.		

TABLE 5.—*Estimated*

Soil names and map symbols	Depth from surface (typical profile)	Classification		
		USDA texture	Unified	AASHO
	In.			
Silty clay loam (NeB, NuB).	0 to 7	Silty clay loam	CL	A-7-6(13-16)
For properties of Mhoon part of NuB, see Mhoon silty clay loam.	7 to 17	Clay	CH	A-7-6(20)
	17 to 48	Silt loam, silty clay loam, or very fine sandy loam.	ML or CL	A-4 or A-6
Oil-waste land (Ow).[1]				
Robinsonville very fine sandy loam (RbC).	0 to 16	Very fine sandy loam or fine sandy loam.	ML or SM	A-4(2-8)
	16 to 48	Very fine sandy loam or fine sandy loam.	ML or SM	A-4(0-8)
Sharkey:				
Clay (Sc,Sf).	0 to 36	Clay or silty clay	CH	A-7-6(20)
	36 to 48	Clay, silty clay loam, or silty loam.	CH or CL	A-7-6 or A-6
Silty clay loam (Ss).	0 to 7	Silty clay loam	CL	A-7-6
	7 to 36	Clay	CH	A-7-6(20)
	36 to 48	Clay, silty clay loam, or silt loam.	CH or CL	A-7-6 or A-6
Silt loam (So).	0 to 9	Silt loam	ML or CL	A-4(4-8)
	9 to 36	Clay	CH	A-7-6(20)
	36 to 48	Clay, silty clay loam, or silt loam.	CH or CL	A-7-6 or A-6
Tensas:				
Silty clay loam (Tb).	0 to 6	Silty clay loam	CL	A-7-6
	6 to 22	Clay	CH	A-7-6(20)
	22 to 60	Silt loam or silty clay loam	ML or CL	A-4 or A6
Silty clay (Ta, TcB, TcD, TdB, TdD).	0 to 22	Silty clay or clay	CH	A-7-6(20)
For properties of Alligator part of TcB, TcD, TdB, and TdD, see Alligator clay.	22 to 60	Silt loam or silty clay loam	ML or CL	A-4 or A-6
For properties of Dundee part of TdB and TdD, see Dundee silty clay loam.				
Tunica clay (Tu).	0 to 25	Clay	CH	A-7-6(19-20)
	25 to 48	Silt loam, silty clay loam, or very fine sandy loam.	ML, CL	A-4 or A-6

[1] Properties are too variable to be estimated.

3. Locate probable sources of sand and gravel and other construction material.
4. Correlate performance with soil mapping units to develop information that will be useful in planning engineering practices and in designing and maintaining engineering structures.
5. Determine the suitability of soils for cross-country movement of vehicles and construction equipment.
6. Estimate the nature of material encountered when excavating for buildings and other structures.
7. Make preliminary estimates of the soil properties that affect the planning of agricultural drainage systems, farm ponds, and irrigation systems.
8. Determine the suitability of soils for sewage disposal systems.
9. Supplement other published information, such as maps, reports, and aerial photographs, that is used in preparation of engineering reports for a specific area.

With the soil map for identification of soil areas, the engineering interpretations reported here can be useful for many purposes. It should be emphasized, however, that these interpretations may not eliminate the need for sampling and testing at the site of specific engineering works

properties of soils—Continued

Percentage passing sieve— No. 40 (0.42 mm.)	Percentage passing sieve— No. 200 (0.074 mm.)	Permeability	Available water capacity	Reaction	Shrink-swell potential	Percolation rate	Depth to and duration of seasonal high water table
		In./hr.	*In./in.*	*pH*		*Min./in.*	
100	90 to 100	0.2 to 0.63	0.21	6.0 to 7.0	Moderate.	45 to 75	15 to 30 inches for 2 to 6 months per year.
100	95 to 100	<.02	0.19	6.5 to 7.5	Very high.		
100	60 to 100	0.2 to 2.0	0.21 to 0.23	7.5 to 8.0	Low to moderate.		
85 to 100	45 to 95	0.63 to 2.0	0.14 to 0.22	6.0 to 7.0	Low.	>50	30 to 60 inches for 2 to 6 months per year.
85 to 100	40 to 90	0.63 to 2.0	0.14 to 0.22	7.0 to 8.0	Low.		
100	95 to 100	<0.2	0.19	6.0 to 7.5	Very high.	<75	Less than 15 inches for 2 to 6 months per year.
100	85 to 100	<0.2 to 0.63	0.19 to 0.23	7.5 to 8.0	Very high to low.		
100	95 to 100	0.2 to 0.63	0.21	6.0 to 7.0	Moderate.	<75	Less than 15 inches for 2 to 6 months per year.
100	95 to 100	<0.2	0.19	7.0 to 8.0	Very high.		
100	85 to 100	<0.2 to 0.63	0.19 to 0.23	7.5 to 8.0	Very high to low.		
100	85 to 95	0.63 to 2.0	0.23	6.0 to 7.0	Low.	<75	Less than 15 inches for 2 to 6 months per year.
100	95 to 100	<0.2	0.19	7.0 to 8.0	Very high.		
100	85 to 100	<0.2 to 0.63	0.19 to 0.23	7.5 to 8.0	Very high to low.		
100	90 to 100	0.2 to 0.63	0.21	5.5 to 6.5	Moderate.	<75	Less than 15 inches for 2 to 6 months per year.
100	95 to 100	<0.2	0.19	5.0 to 6.0	Very high.		
100	80 to 100	0.2 to 0.63	0.19 to 0.23	5.0 to 6.5	Low to moderate.		
100	95 to 100	<0.2	0.19	5.0 to 6.5	Very high.	<90	Less than 15 inches for 2 to 6 months per year.
100	80 to 100	0.2 to 0.63	0.23 to 0.21	5.0 to 6.5	Low to moderate.		
100	95 to 100	<0.2	0.19	6.0 to 7.5	Very high.	<90	Less than 15 inches for 2 to 6 months per year.
100	60 to 100	0.2 to 2.0	0.14 to 0.23	7.5 to 8.0	Low to moderate.		

involving heavy loads and excavations deeper than the depths of layers here reported.

Some of the terms used by soil scientists have a special meaning in soil science that may not be familiar to engineers. These terms are defined in the Glossary.

Engineering classification systems

Two systems of classifying soils for engineering purposes are in general use: the AASHO system and the Unified system.

Most highway engineers classify soil material in accordance with the system approved by the American Association of State Highway Officials (AASHO) (*1*). In this system all soil material is classified in seven principal groups. The groups range from A–1, which consists of soils that have the highest bearing capacity, to A–7, which consists of soils that have the lowest strength when wet. Within each group the relative engineering value of the soil material is indicated by a group index number. The numbers range from 0, for the best material for subgrades (roadfill or embankment), to 20, for the poorest material. The group index number is shown in parentheses following the soil group symbol in the columns headed "AASHO" in tables 4 and 5.

Some engineers prefer to use the Unified soil classification system (*16*). In this system soils are identified accord-

ing to (1) the percentage of gravel, sand, and fines; (2) the shape of the grain-size distribution curve; and (3) the plasticity and compressibility characteristics. An approximate classification of soils by this system can be made in the field. For exact classification, mechanical analysis is needed, and for some soils standard tests for liquid limit and plastic limit are needed also. In the Unified system soils are grouped in 15 classes. There are eight classes of coarse-grained soils, six classes of fine-grained soils, and one class of highly organic soils.

Table 4 shows the AASHO and Unified classification of specified soils in the parish, as determined by laboratory tests. Table 5 shows the estimated classification of all the soils in the parish according to both systems.

Test data

Soil samples taken from eight soil profiles in the parish were tested in accordance with standard procedures to help evaluate the soils for engineering purposes. Table 4 (p. 32) gives the results. The soils were sampled to a depth of approximately 4 feet. The test data show some variations in the characteristics of these soils but probably do not show the entire range of variations in the lower horizons. The data in table 4, therefore, may not be adequate for estimating the characteristics of soil material in deep cuts.

The engineering classifications given in table 4 are based on the data obtained by mechanical analysis and on the liquid limit and plasticity index. The mechanical analysis was made by combined hydrometer and sieve methods.

Liquid limit and plasticity index indicate the effect of water on the consistence of the soil material. As the moisture content of a clayey soil increases from a very dry state, the material changes from semisolid to plastic. As the moisture content is further increased, the material changes from plastic to liquid. The *plastic limit* is the moisture content at which the soil material passes from semisolid to plastic. The *liquid limit* is the moisture content at which the material changes from plastic to liquid. The *plasticity index* is the numerical difference between the liquid limit and the plastic limit. It indicates the range of moisture content within which a soil is plastic.

Table 4 also gives moisture-density (compaction) data for the soils tested. If dry soil is compacted at successively higher moisture content and the compactive effort remains constant, the dry density of the compacted material increases as the moisture content increases, until the optimum moisture content is reached. After that, the dry density decreases as the moisture content increases. The highest dry density obtained is the *maximum dry density*, and the corresponding moisture content is the *optimum moisture.* Moisture-density data are important in earthwork, because, as a rule, optimum stability is obtained if the soil is compacted to about the maximum dry density at approximately the optimum moisture content.

In the construction of embankments, engineers are concerned with *dispersion*, which refers to the degree to which and the speed at which soil structure breaks down or slakes in water. A highly dispersed soil sloughs readily, is highly erodible on slopes, has low shear strength, and has high piping potential. According to the test data, none of the soils tested in Tensas Parish were highly dispersed; therefore, it is unlikely that dispersion will be a major limitation.

Shrinkage characteristics are of considerable importance in selecting soils to be used for engineering purposes. As moisture leaves a soil, the soil shrinks and decreases in volume in proportion to the loss of moisture, until a point is reached where shrinkage stops even though additional moisture is removed. The moisture content at which shrinkage stops is called the *shrinkage limit.* This is expressed as a percentage of the weight of the soil when it is oven dry. The *shrinkage ratio* is the volume change resulting from the drying of a soil, divided by the loss of moisture caused by drying. The ratio is expressed as a percentage of the volume of the oven-dry soil. The volume change used in computing shrinkage ratio is the change in volume that takes place in a soil when it dries from a given moisture content to a point where no further shrinkage takes place.

Estimated properties of the soils

Table 5 (p. 34) gives estimated properties of all soils in the parish. The estimates are based on the data shown in table 4, on field observations of and experience with the soils in the parish, and on tests on similar soils in adjacent parishes.

The depth to the seasonally high water table is the level at which free water stays in the soil for extended periods. Ordinarily the water table in Tensas Parish is highest in winter and early in spring. Free water occurs at high levels immediately after a rain but does not stay at this level for a significant period.

Permeability was estimated as it occurred in undisturbed soils. The estimates were based on the structure and porosity of the soil and on permeability tests of undisturbed cores of similar soil material.

Available water capacity is the amount of water in the soil and available to plants between field capacity and the wilting point.

Reaction is the degree of acidity or alkalinity of the soil.

The shrink-swell potential indicates the volume change to be expected with a change in moisture content. The shrinking and swelling of soils, resulting from wetting and drying, damages foundations, roads, and other structures. Estimates of shrink-swell potential are based on volume change tests, on observations, or on physical properties or characteristics of the soil. For example, Sharkey clay, which is high in montmorillonite, is very sticky when wet and develops extensive shrinkage cracks when dry. Hence, it has a very high shrink-swell potential (fig. 7). Conversely, the subsoil of Crevasse fine sand is very low in clay, is structureless (single grained), is nonplastic, and has a low shrink-swell potential.

The percolation rate is the length of time required for water to fall 1 inch in a percolation test hole. This test measures the suitability of soils for sewage filter fields.

Engineering interpretations

Table 6 (p. 40) evaluates the suitability of the soils for engineering uses. Some aspects of engineering works are dependent on soil and drainage conditions.

Highway and Foundation Engineering

Some soil features present limitations in designing, constructing, and maintaining highways and building foundations. For example, the Alligator, Sharkey, Tunica,

Figure 7.—**Sharkey clay cracks when dry. The shrink-swell potential is very high.**

Newellton, and Tensas soils shrink and crack when dry and seal over when wet, have low bearing capacity, and therefore present special limitations in foundation designs. Many of the soils in the parish have a seasonal high water table, and some are subject to overflow. The depth to the seasonal high water table is given in table 5. The bedrock in this parish is not a limiting factor, because it is at considerable depth. In fact, it is at too great a depth to be used as footings for foundations.

The soil features that most significantly affect road location are drainage, the depth to the water table, the hazard of overflow, the shrink-swell potential, the traffic-supporting capacity, and the hazard of erosion on slopes.

The natural levees are generally the best sites for roads because the soils on the levees have fairly good traffic-supporting capacity and have fair surface drainage. Loamy soils, such as the Bruin or Commerce soils, are generally suitable for roads through farms or fields. Clayey soils, such as Sharkey and Alligator, are very poor for farm roads and require good drainage and a thick subbase if roads are to be hard surfaced.

Table 6 evaluates the general suitability of the soils as sources of topsoil for topdressing road shoulders, embankments, homesites, and other areas on which vegetation needs to be established to prevent erosion or improve trafficability. A rating of *good* indicates that the soil has a thick deposit of loamy material fairly high in organic matter and that it responds well to management for establishing and maintaining a good turf. A rating of *poor* indicates that the soil has a thin or clayey surface layer or a seasonal high water table.

The ratings of the suitability of the soils as a source of sand are based mainly on a knowledge of the soils and on laboratory test data. None of the soils in Tensas Parish are known to have layers of gravel suitable for construction purposes at or near the surface.

The suitability of the soils as material for subgrade, roadfill, or embankment depends largely on texture and natural water content. A rating of *poor* indicates that the soil is very plastic; that is, it is high in natural water content and is difficult to handle, to dry, and to compact. The Alligator, Sharkey, Tensas, and Tunica soils are examples of very plastic soils that have a very high shrink-swell potential. Only nonplastic soils, such as Crevasse, Robinsonville, and Goldman, are suitable for road subbase. The Bruin soils and certain layers of the Commerce, Dundee, and Newellton soils may be used with additives for subbase material if the plasticity index is less than 15. The side slopes of soils that are susceptible to erosion, such as the Bruin, Robinsonville, Crevasse, and Goldman soils, need a protective cover of vegetation.

Farm Ponds or Reservoirs

The soil feature most important in selecting reservoir location is the permeability of the underlying material, which controls the rate of seepage. Permeable soils, such as Crevasse soils, or soils underlain by permeable layers, such as Newellton soils, generally are unsuitable for farm ponds or reservoirs unless treated so as to reduce seepage. The soil features important for embankments are permeability, seepage, piping, shrink-swell potential, susceptibility to erosion, and strength and stability. Embankments generally have an inner core of clayey, impermeable material covered by an outer shell of silty or sandy material. This type of construction prevents most of the seepage through the embankment and improves the stability of the embankment slopes.

Drainage

Most of the soils that have less than 1 percent slope or that occur in swales in ridge-swale topography need surface drainage for maximum production of the crops generally grown in the parish. The clayey, very slowly permeable, level soils, such as Sharkey and Alligator soils, require intensive drainage if cultivated crops and pasture grasses are to be grown. The medium-textured, more permeable, level soils, such as Bruin and Commerce soils, require less intensive drainage.

Drainage is effected chiefly by constructing open ditches and by leveling and grading. For good drainage in areas of ridge-swale topography, deep cuts generally are needed through the ridges, and a large amount of earth has to be moved in grading and leveling operations. Tile drainage is ineffective because of the slow permeability of many of the soils.

Irrigation

Supplemental irrigation is likely to be needed during dry periods for maximum crop production. The average yearly rainfall is high, but it is not evenly distributed throughout the growing season. Much of the rain falls in the winter. In many years, from June through September, there are periods when there is not enough moisture in the soil for maximum plant growth.

The soil features that affect irrigation design and practices are the intake rate, the slope, and the available water capacity. Soils, for example, Crevasse soils, that have low available water capacity and rapid intake rate require frequent applications of water. Interpretations useful in planning needed irrigation are given in table 6.

Community Development

The soil properties significant in selecting sites for dwellings served by sewage systems are the shrink-swell potential, the bearing capacity, and the hazard of overflow. The bearing capacity is that quality of a soil that determines its capacity to support a load.

TABLE 6.—*Engineering*

[Engineers and others should not apply specific values

Mapping units and map symbols	Suitability as source of— Topsoil	Road subgrade	Road subbase	Sand	Degree and kind of — Dwellings with— Public or community sewage system	Septic tank filter field	Recreational areas
Alligator clay, 0 to 1 percent slopes (AcA).	Poor	Poor	Not suitable	Not suitable	Severe: high shrink-swell potential; low bearing capacity; high water table; flooding.	Very severe: slow percolation; very high shrink-swell potential; low bearing capacity; high water table; flooding.	Severe: high water table; flooding; surface texture.
Alligator clay, gently undulating (AgB). Alligator clay, undulating (AgD).	Poor	Poor	Not suitable	Not suitable	Severe: high shrink-swell potential; low bearing capacity; high water table; flooding in swales.	Very severe: slow percolation; high shrink-swell potential; low bearing capacity; high water table; flooding in swales.	Severe on ridges and very severe in swales; high water table; flooding; surface texture.
Bruin silt loam, 0 to 1 percent slopes (BaA). Bruin silt loam, 1 to 3 percent slopes (BaB).	Good	Fair	Suitable with additives.	Poor: very fine sandy loam available below a depth of 34 inches in places.	Slight	Slight	Very slight
Bruin-Mhoon complex, gently undulating (BmB):							
Bruin	Good	Fair	Suitable with additives.	Poor: very fine sandy loam available below a depth of 34 inches in places.	Slight	Slight	Very slight
Mhoon	Poor	Poor	Not suitable	Not suitable	Severe: low bearing capacity; high water table; flooding.	Very severe: slow percolation; low bearing capacity; high water table; some flooding.	Severe: high water table; surface texture; flooding.
Bruin-Robinsonville-Crevasse complex, undulating (BrC):							
Bruin	Good	Fair	Suitable with additives.	Poor: very fine sandy loam available below a depth of 34 inches in places.	Very slight	Very slight	Very slight

interpretations

to the estimates given for bearing capacity of soils]

limitations for—	Soil features that adversely affect suitability for engineering purposes						
Light industry	Farm ponds or reservoirs: Reservoir area	Farm ponds or reservoirs: Embankment	Road location	Irrigation: Sprinkler	Irrigation: Furrow or contour border	Drainage (open ditch)	Grading or leveling
Severe: high shrink-swell potential; high water table; low bearing capacity; flooding; high corrosion potential.	None	High shrink-swell potential; low strength and stability.	High water table; high shrink-swell potential; low traffic-supporting capacity; subject to flooding.	Very slow intake after cracks seal; trafficability.	Very slow intake; poor material for borders and delivery canals because of cracking.	High water table; very slow permeability; subject to flooding.	Texture and wetness; very difficult to work; workable for only limited periods.
Severe: high shrink-swell potential; high water table; low bearing capacity; flooding in swales; high corrosion potential; slope.	None	High shrink-swell potential: low strength and stability.	High water table; high shrink-swell potential; low traffic-supporting capacity; flooding in swales.	Very slow intake after cracks seal; trafficability; short irregular slopes.	Slope and very slow intake; not generally feasible because of slope.	High water table; very slow permeability; subject to flooding in swales; deep cuts generally needed through ridges.	Texture, slope, and wetnesss; very difficult to work; workable for only limited periods; large amount of earth to be moved.
Slight	Moderate seepage in places.	Low strength and stability; subject to piping; highly erodible.	Highly erodible on slopes.	Moderately slow intake.	Slope; feasible on 0 to 1 percent slopes, generally not feasible on 1 to 3 percent slopes.	Not needed	Slope; feasible on 0 to 1 percent slopes, generally not feasible on 1 to 3 percent slopes.
Slight	Moderate seepage in places.	Low strength and stability; subject to piping; highly erodible.	Highly erodible on slopes.	Short irregular slopes.	Slope; not generally feasible because of slope.	Not needed	Slope; large amount of earth to be moved.
Severe: low bearing capacity; moderate shrink-swell potential; high water table; high corrosion potential.	None	Moderate strength and stability; moderate shrink-swell potential.	High water table; moderate traffic-supporting capacity.	Moderately slow intake; short irregular slopes.	Slope; not generally feasible because of slope.	Slow permeability; high water table; some flooding; deep cuts generally needed through ridges.	Slope; wetness; large amount of earth to be moved.
Very slight	Moderate seepage in places.	Low strength and stability; subject to piping; highly erodible.	Highly erodible on slopes.	Short irregular slopes.	Slope; not generally feasible because of slope.	Not needed	Slope; large amount of earth to be moved.

TABLE 6.—*Engineering*

Mapping units and map symbols	Suitability as source of—				Degree and kind of		
					Dwellings with—		
	Topsoil	Road subgrade	Road subbase	Sand	Public or community sewage system	Septic tank filter field	Recreational areas
Bruin-Robinsonville-Crevasse—Continued Robinsonville	Good	Fair to good	Poor to fair	Fair: loamy fine sand available below a depth of 36 inches in places.	Very slight	Very slight	Very slight
Crevasse	Poor	Fair to good	Fair	Good: fine sand to loamy sand available.	Slight	Slight	Moderate: surface texture.
Clayey alluvial land and Sharkey clay, overflow, 0 to 5 percent slopes (ChC).	Poor	Poor	Not suitable	Not suitable	Very severe: overflow hazard.	Very severe: overflow hazard.	Very severe: overflow hazard.
Commerce silt loam, 0 to 1 percent slopes (CmA). Commerce silt loam, 1 to 3 percent slopes (CmB).	Good	Fair	Some layers suitable with additives.	Not suitable	Slight	Moderate: moderate percolation.	Slight
Commerce silty clay loam, 0 to 1 percent slopes (CnA).	Fair to good.	Fair	Some layers suitable with additives.	Not suitable	Slight	Moderate: moderate percolation.	Moderate: surface texture.
Commerce silty clay loam, gently undulating (CoB).	Fair to good.	Fair	Some layers suitable with additives.	Not suitable	Slight	Moderate: moderate percolation.	Moderate: surface texture.
Crevasse fine sand, 0 to 8 percent slopes (CrD).	Poor	Fair to good	Fair	Good: fine sand to loamy fine sand available.	Slight	Slight	Moderate: surface texture.
Crevasse fine sand, overflow, 0 to 8 percent slopes (CsD).	Poor	Fair to good	Fair	Good: fine sand to loamy fine sand available.	Very severe: overflow hazard.	Very severe: overflow hazard.	Very severe: overflow hazard.

interpretations—Continued

limitation for—	Soil features that adversely affect suitability for engineering purposes						
	Farm ponds or reservoirs		Road location	Irrigation		Drainage (open ditch)	Grading or leveling
Light industry	Reservoir area	Embankment		Sprinkler	Furrow or contour border		
Very slight	High seepage in places.	Low to moderate strength and stability; highly erodible; subject to piping and seepage.	Highly erodible on slopes.	Short irregular slopes.	Slope; not generally feasible because of slope.	Not needed	Slope; large amount of earth to be moved.
Slight	Very high seepage in places.	Highly erodible; subject to seepage and piping.	Highly erodible on slopes.	Short irregular slopes; low water-holding capacity.	Slope; not generally feasible because of slope and rapid intake rate.	Not needed	Slope; large amount of earth to be moved.
Very severe: overflow hazard.	Subject to severe overflow.	High shrink-swell potential; moderate strength and stability.	Subjest to severe overflow.	Not practical because of overflow hazard.	Not practical because of overflow hazard.	Not practical because of overflow hazard.	Not practical because of overflow hazard.
Moderate: moderate bearing capacity; moderate corrosion potential.	Seepage in places.	Moderate strength and stability; moderately erodible.	Moderate traffic-supporting capacity; moderately erodible on slopes.	Moderately slow intake.	Slope; feasible on 0 to 1 percent slopes; not feasible on 1 to 3 percent slopes.	Slow permeability; moderately high water table.	Slope; feasible on 0 to 1 percent slopes; large amount of earth to be moved on 1 to 3 percent slopes.
Moderate: moderate bearing capacity; moderate corrosion potential.	Seepage in places.	Moderate strength and stability; moderately erodible.	Moderate traffic-supporting capacity; modately erodiible on slopes.	Slow intake	None	Slow permeability; moderately high water table.	Moderate amount of earth to be moved.
Moderate: moderate bearing capacity; moderate corrosion potential.	Seepage in places.	Moderate strength and stability; moderately erodible.	Moderate traffic-supporting capacity; moderately erodible on slopes.	Slow intake; short irregular slopes.	Slope; not generally feasible because of slope.	Slow permeability; moderately high water table.	Slope; large amount of earth to be moved.
Slight	Very high seepage in places.	Highly erodible; subject to seepage and piping.	Highly erodible on slopes.	Short irregular slopes; low water-holding capacity.	High intake; slope; water-holding capacity; not generally feasible because of slope and intake rate.	Not needed	Slope; moderately large to very large amount of earth to be moved.
Very severe: overflow hazard.	High seepage in places; subject to severe overflow.	Moderately highly erodible; subject to seepage and piping.	Subject to severe overflow.	Not practical because of overflow hazard.	Not practical because of overflow hazard.	Not needed	Not practical because of overflow hazard.

TABLE 6.—*Engineering*

Mapping units and map symbols	Suitability as source of—				Degree and kind of		
	Topsoil	Road subgrade	Road subbase	Sand	Dwellings with— Public or community sewage system	Dwellings with— Septic tank filter field	Recreational areas
Dundee silt loam (Dd).	Good	Fair	Some layers suitable with additives.	Not suitable	Slight	Moderate: moderate percolation.	Slight
Dundee silty clay loam (De).	Fair	Fair	Not suitable	Not suitable	Slight	Moderate: moderate percolation.	Moderate: surface texture.
Dundee-Tensas-Goldman complex, gently undulating (DtB):							
Dundee	Good	Fair	Not suitable	Not suitable	Slight	Moderate: moderate percolation.	Slight
Tensas	Poor	Poor to a depth of 22 inches; poor to fair below 22 inches.	Not suitable	Not suitable	Very severe: high shrink-swell potential; low bearing capacity; high water table; flooding.	Very severe: slow percolation; high shrink-swell potential; low bearing capacity; high water table; flooding.	Severe: high water table; surface texture.
Goldman	Fair to good.	Fair to good	Poor to fair	Poor: in places loamy fine sand available below a depth of 48 inches.	Very slight	Very slight	Very slight
Dundee-Goldman-Tensas complex, undulating (DgD).							
Dundee	Good	Fair	Not suitable	Not suitable	Slight	Moderate: moderate percolation.	Slight
Goldman	Fair to good.	Fair to good	Poor to fair	Poor: in places loamy fine sand available below a depth of 48 inches.	Very slight	Very slight	Very slight

interpretations—Continued

limitation for—	Soil features that adversely affect suitability for engineering purposes						
Light industry	Farm ponds or reservoirs: Reservoir area	Farm ponds or reservoirs: Embankment	Road location	Irrigation: Sprinkler	Irrigation: Furrow or contour border	Drainage (open ditch)	Grading or leveling
Moderate: moderate bearing capacity; moderate corrosion potential.	Seepage in places.	Moderate strength and stability; moderately erodible.	Moderate traffic-supporting capacity; moderately erodible on slopes.	Moderately slow intake.	None	Slow permeability; moderately high water table.	Slope; moderate to large amount of earth to be moved.
Moderate: moderate bearing capacity; moderate corrosion potential.	None	Moderate shrink-swell potential; moderate strength and stability.	Moderate traffic-supporting capacity; moderately erodible on slopes.	Slow intake	None	Slow permeability; moderately high water table.	Texture; somewhat difficult to work.
Moderate: moderate bearing capacity; moderate corrosion potential.	Seepage in places if dug out below a depth of 24 inches.	Moderate strength and stability; moderately erodible.	Moderate traffic-supporting capacity; moderately erodible on slopes.	Short irregular slopes.	Slope; not generally feasible because of slope.	Not needed	Slope; large amount of earth to be moved.
Very severe: high shrink-swell potential; low bearing capacity; high water table; high corrosion potential; flooding.	None	High shrink-swell potential; low strength and stability.	High shrink-swell potential; high water table; low traffic-supporting capacity; flooding.	Short irregular slopes; slow intake; trafficability.	Slope; not generally feasible because of slope.	Very slow permeability; high water table; flooding; deep cuts generally needed through ridges.	Slope; wetness in swales; large amount of earth to be moved.
Very slight	High seepage in places.	Subject to seepage and piping; highly erodible.	Highly erodible on slopes.	Short irregular slopes.	Slope; not generally feasible because of slope.	Not needed through ridges.	Slope; large amount of earth to be moved.
Moderate: moderate bearing capacity; moderate corrosion potential.	Seepage in places.	Moderate strength and stability; moderately erodible.	Moderate traffic-supporting capacity; moderately erodible on slopes.	Short irregular slopes.	Slope; not generally feasible because of slope.	Not needed	Slope; generally not feasible because of large amount of earth to be moved.
Very slight	High seepage in places.	Subject to seepage and piping; highly erodible.	Highly erodible on slopes.	Short irregular slopes.	Slope; not generally feasible because of slope.	Not needed	Slope; generally not feasible because of large amount of earth to be moved.

TABLE 6.—*Engineering*

Mapping units and map symbols	Suitability as source of— Topsoil	Road subgrade	Road subbase	Sand	Degree and kind of — Dwellings with— Public or community sewage system	Septic tank filter field	Recreational areas
Dundee-Goldman-Tensas—Continued							
Tensas	Poor	Poor to a depth of 22 inches; poor to fair below 22 inches.	Not suitable	Not suitable	Very severe: high shrink-swell potential; low bearing capacity; high water table; flooding.	Very severe: slow percolation; high shrink-swell potential; low bearing capacity; high water table; flooding.	Severe: high water table; surface texture.
Loamy alluvial land and Robinsonville soils, overflow, 0 to 5 percent slopes (LrC):							
Loamy alluvial land.	Good	Poor to fair	Not suitable	Not suitable	Very severe: overflow hazard.	Very severe: overflow hazard.	Severe: overflow hazard.
Robinsonville	Good	Fair to good	Poor to fair	Fair: in places loamy fine sand available below a depth of 36 inches.	Very severe: overflow hazard.	Very severe: overflow hazard.	Severe: overflow hazard.
Mhoon silt loam (Mh).	Fair	Poor	Not suitable	Not suitable	Moderate: low bearing capacity; moderate shrink-swell potential; high water table.	Very severe: slow percolation; low bearing capacity; moderate shrink-swell potential; high water table.	Moderate: high water table.
Mhoon silty clay loam (Mo).	Poor	Poor	Not suitable	Not suitable	Severe: low bearing capacity; high water table; moderate shrink-swell potential.	Very severe: slow percolation; low bearing capacity; moderate shrink-swell potential; high water table.	Severe: high water table; texture of surface layer.
Newellton clay, 0 to 1 percent slopes (NcA).	Poor	Poor to a depth of 16 inches; fair below 16 inches.	Not suitable to a depth of 16 inches; suitable with additives below 16 inches.	Poor: in places very fine sandy loam available below a depth of 16 inches.	Severe: low bearing capacity; high water table; high shrink-swell potential.	Very severe: slow percolation; low bearing capacity; high shrink-swell potential; high water table.	Severe: high water table; texture of surface layer.

interpretations—Continued

limitation for—	Soil features that adversely affect suitability for engineering purposes						
Light industry	Farm ponds or reservoirs: Reservoir area	Farm ponds or reservoirs: Embankment	Road location	Irrigation: Sprinkler	Irrigation: Furrow or contour border	Drainage (open ditch)	Grading or leveling
Very severe: high shrink-swell potential; low bearing capacity; high water table; flooding; high corrosion potential.	None	High shrink-swell potential; low strength and stability.	High shrink-swell potential; high water table; low traffic-supporting capacity; flooding.	Short irregular slopes; slow intake.	Slope; not generally feasible because of slope.	Very slow permeability; high water table; flooding; deep cuts generally needed through ridges.	Slope; wetness in swales; generally not feasible because of large amount of earth to be moved.
Very severe: overflow hazard.	Seepage in places; subject to overflow.	Low to moderate strength and stability; highly erodible.	Subject to severe overflow.	Not practical because of overflow hazard.	Not practical because of overflow hazard.	Not practical because of overflow hazard.	Not practical because of overflow hazard.
Very severe: overflow hazard.	High seepage in places; subject to overflow.	Low to moderate strength and stability; highly erodible.	Subject to severe overflow.	Not practical because of overflow hazard.	Not practical because of overflow hazard.	Not practical because of overflow hazard.	Not practical because of overflow hazard.
Severe: low bearing capacity; high water table; moderate shrink-swell potential; high corrosion potential.	None	Moderate strength and stability; moderate shrink-swell potential.	High water table; moderate traffic-supporting capacity.	Moderately slow intake.	None	Slow permeability; high water table.	Wetness; workable for somewhat limited periods.
Severe: low bearing capacity; high water table; moderate shrink-swell potential; high corrosion potential.	None	Moderate strength and stability; moderate shrink-swell potential.	High water table; moderate traffic-supporting capacity.	Moderately slow intake.	None	Slow permeability; high water table.	Wetness; texture; workable for somewhat limited periods.
Severe: low bearing capacity; high water table; high shrink-swell potential; high corrosion potential.	Seepage in places if dug out below a depth of 16 inches.	Low strength and stability; high shrink-swell potential.	High shrink-swell potential; high water table; low traffic-supporting capacity.	Very slow intake when cracks seal; trafficability.	Very slow intake; poor material for borders and delivery canals because of cracking.	Very slow permeability; high water table.	Texture; wetness; difficult to work; workable for limited periods.

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TABLE 6.—*Engineering*

Mapping units and map symbols	Suitability as source of—				Degree and kind of		
					Dwellings with—		
	Topsoil	Road subgrade	Road subbase	Sand	Public or community sewage system	Septic tank filter field	Recreational areas
Newellton clay, 1 to 5 percent slopes (NcC). Newellton silty clay loam, 1 to 3 percent slopes (NeB).	Poor	Poor to a depth of 16 inches; fair below a depth of 16 inches.	Not suitable to a depth of 16 inches; suitable with additives below 16 inches.	Poor: in places very fine sandy loam available below a depth of 16 inches.	Severe: low bearing capacity; high water table; high shrink-swell potential.	Very severe: slow percolation; low bearing capacity; high shrink-swell potential; high water table.	Severe: high water table; texture of surface layer.
Newellton-Commerce-Tunica complex, undulating (NtC):							
Newellton	Poor	Poor	Not suitable to a depth of 16 inches; suitable with additives below 16 inches.	Poor: in places very fine sandy loam available below a depth of 16 inches.	Severe: low bearing capacity; high water table; high shrink-swell potential.	Very severe: slow percolation; low bearing capacity; high shrink-swell potential; high water table.	Severe: high water table; texture of surface layer.
Commerce	Good	Fair	Some layers are suitable with additives.	Not suitable	Slight	Moderate: moderate percolation.	Slight
Tunica	Poor	Poor to a depth of 25 inches; poor to fair below 25 inches.	Not suitable	Not suitable	Very severe: low bearing capacity; high water table; high shrink-swell potential; flooding.	Very severe: slow percolation; low bearing capacity; high water table; high shrink-swell potential; flooding.	Very severe: high water table; texture of surface layer; flooding.
Newellton-Mhoon silty clay loams, gently undulating (NuB):							
Newellton	Poor	Poor to a depth of 16 inches; fair below 16 inches.	Not suitable to a depth of 16 inches; suitable with additives below 16 inches.	Poor: in places very fine sandy loam available below a depth of 16 inches.	Severe: low bearing capacity; high water table; high shrink-swell potential.	Very severe: slow percolation; low bearing capacity; high shrink-swell potential; high water table.	Severe: high water table; texture of surface layer.
Mhoon	Poor	Poor	Not suitable.	Not suitable.	Severe: low bearing capacity; high water table; moderate shrink-swell potential.	Very severe: slow percolation; low bearing capacity; moderate shrink-swell potential; high water table.	Severe: high water table; texture of surface layer.

interpretations—Continued

limitation for—	Soil features that adversely affect suitability for engineering purposes						
	Farm ponds or reservoirs		Road location	Irrigation		Drainage (open ditch)	Grading or leveling
Light industry	Reservoir area	Embankment		Sprinkler	Furrow or contour border		
Severe: low bearing capacity; high water table; high shrink-swell potential; high corrosion potential.	Seepage in places if dug out below a depth of 16 inches.	Low strength and stability; high shrink-swell potential.	High shrink-swell potential; high water table; low traffic-supporting capacity.	Very slow intake when cracks seal; trafficability; slope.	Slope; very slow intake; not generally feasible because of slope.	Not needed	Slope; texture; not generally feasible because of slope.
Severe: low bearing capacity; high water table; high shrink-swell potential; high corrosion potential.	Seepage in places if dug out below a depth of 16 inches.	Low strength and stability; high shrink-swell potential.	High shrink-swell potential; high water table; low traffic-supporting capacity.	Short irregular slopes; very slow intake; trafficability.	Slope; not generally feasible because of slope.	Very slow permeability; high water table; deep cuts generally needed through ridges.	Slope; texture; wetness; large amount of earth to be moved.
Moderate bearing capacity; moderate corrosion potential.	Seepage in places.	Moderate strength and stability; moderately erodible.	Moderately erodible; moderate traffic-supporting capacity.	Short irregular slopes; moderately slow intake.	Slope; not generally feasible because of slope.	Not needed	Slope; large amount of earth to be moved.
Very severe: low bearing capacity; high water table; high shrink-swell potential; high corrosion potential; flooding.	Seepage in places if dug out below a depth of 25 inches.	Low strength and stability; high shrink-swell potential.	High shrink-swell potential; high water table low traffic-supporting capacity.	Short irregular slopes; slow intake; trafficability.	Slope; not generally feasible because of slope.	Very slow permeability; high water table; flooding; deep cuts generally needed through ridges.	Slope; texture; wetness; large amount of earth to be moved.
Severe: low bearing capacity; high water table; high shrink-swell potential; high corrosion potential.	Seepage in places if dug out below a depth of 16 inches.	Low strength and stability; moderate shrink-swell potential.	High water table; low traffic-supporting capacity.	Short irregular slopes; slow intake.	Slope; not generally feasible because of slope.	Very slow permeability; high water table; deep cuts generally needed through ridges.	Slope; wetness; large amount of earth to be moved.
Severe: low bearing capacity; high water table; moderate shrink-swell potential; high corrosion potential.	None	Moderate strength and stability; moderate shrink-swell potential.	High water table; moderate traffic-supporting capacity.	Short irregular slopes; moderately slow intake.	Slope; not generally feasible because of slope.	Slow permeability; high water table; deep cuts generally needed through ridges.	Slope; wetness; large amount of earth to be moved.

TABLE 6.—*Engineering*

Mapping units and map symbols	Suitability as source of—				Degree and kind of		
					Dwellings with—		
	Topsoil	Road subgrade	Road subbase	Sand	Public or community sewage system	Septic tank filter field	Recreational areas
Newellton-Sharkey clays, undulating (NyC):							
Newellton	Poor	Poor to a depth of 16 inches; fair below 16 inches.	Not suitable to a depth of 16 inches; suitable with additives below 16 inches.	Poor: in places very fine sandy loam available below a depth of 16 inches.	Severe: low bearing capacity; high water table; high shrink-swell potential.	Very severe: slow percolation; low bearing capacity; high shrink-swell potential; high water table.	Severe: high water table; texture of surface layer.
Sharkey	Poor	Poor	Not suitable.	Not suitable.	Very severe: high shrink-swell potential; low bearing capacity; high water table; flooding.	Very severe: slow percolation; high shrink-swell potential; low bearing capacity; high water table; flooding.	Severe: high water table; texture of surface layer; flooding.
Oil-waste land (Ow).[1]							
Robinsonville very fine sandy loam, 1 to 5 percent slopes (RbC).	Good	Fair to good	Poor to fair	Fair: in places loamy fine sand available below a depth of 36 inches.	Very slight	Slight	Very slight
Sharkey silt loam (So).	Fair	Poor	Not suitable	Not suitable	Moderate: high shrink-swell potential; low bearing capacity; high water table.	Very severe: slow percolation; high shrink-swell potential; low bearing capacity; high water table.	Moderate: high water table.
Sharkey clay (Sc). Sharkey silty clay loam (Ss).	Poor	Poor	Not suitable	Not suitable	Severe: high shrink-swell potential; low bearing capacity; high water table.	Very severe: slow percolation; high shrink-swell potential; low bearing capacity; high water table.	Severe: high water table; texture of surface layer.
Sharkey clay, overflow (Sf).	Poor	Poor	Not suitable	Not suitable	Very severe: high shrink-swell potential; low bearing capacity; very high water table; subject to overflow.	Very severe: slow percolation; high shrink-swell potential; low bearing capacity; high water table; subject to overflow.	Very severe: very high water table; texture of surface layer; subject to overflow.

[1] Affected by salt water and oil liquids. Properties vary.

interpretations—Continued

limitation for—	Soil features that adversely affect suitability for engineering purposes						
Light industry	Farm ponds or reservoirs: Reservoir area	Farm ponds or reservoirs: Embankment	Road location	Irrigation: Sprinkler	Irrigation: Furrow or contour border	Drainage (open ditch)	Grading or leveling
Severe: low bearing capacity; high water table; high shrink-swell potential; high corrosion potential.	Seepage in places if dug out below a depth of 16 inches.	Low strength and stability; high shrink-swell potential.	High water table; high shrink-swell potential; low traffic-supporting capacity.	Short irregular slopes; very slow intake; trafficability.	Slope; very slow intake; not generally feasible because of slope.	High water table; very slow permeability; deep cuts generally needed through ridges.	Texture; slope; wetness; difficult to work; workable for limited periods; large amount of earth to be moved.
Severe: low bearing capacity; high water table; high shrink-swell potential; high corrosion potential; flooding.	None	High shrink-swell potential; low strength and stability.	High water table; high shrink-swell potential; low traffic-supporting capacity; flooding.	Short irregular slopes; very slow intake after cracks seal; trafficability.	Slope; very slow intake; not generally feasible because of slope.	High water table; very slow permeability; subject to flooding.	Texture; slope; wetness; difficult to work; workable for limited periods; large amount of earth to be moved.
Very slight	High seepage in places.	Low to moderate strength and stability; moderately to highly erodible; subject to piping and seepage.	Highly erodible on slopes.	Slope	Slope; not generally feasible because of slope.	Not needed	Slope; not generally feasible because of slope.
Severe: low bearing capacity; high water table; high shrink-swell potential; high corrosion potential.	None	High shrink-swell potential; low strength and stability.	High water table; high shrink-swell potential; low traffic-supporting capacity.	Moderately slow intake.	None	Very slow permeability; high water table.	Wetness; subsoil texture; somewhat difficult to work; workable for limited periods.
Severe: low bearing capacity; high water table; high shrink-swell potential; high corrosion potential.	None	High shrink-swell potential; low strength and stability.	High water table; high shrink-swell potential; low traffic-supporting capacity.	Very slow intake when cracks seal; trafficability.	Very slow intake; poor material for borders and delivery canals because of cracking.	Very slow permeability; high water table.	Texture; wetness; difficult to work; workable for limited periods.
Very severe: low bearing capacity; very high water table; high shrink-swell potential; high corrosion potential; subject to overflow.	Subject to overflow.	High shrink-swell potential; low strength and stability.	Very high water table; high shrink-swell potential; low traffic-supporting capacity; subject to overflow.	Not practical because of overflow hazard.	Not practical because of overflow hazard.	Not practical because of overflow hazard.	Not practical because of overflow hazard.

TABLE 6.—*Engineering*

Mapping units and map symbols	Suitability as source of—				Degree and kind of		
	Topsoil	Road subgrade	Road subbase	Sand	Dwellings with— Public or community sewage system	Dwellings with— Septic tank filter field	Recreational areas
Tensas silty clay (Ta). Tensas silty clay loam (Tb).	Poor	Poor to a depth of 22 inches; poor to fair below 22 inches.	Not suitable	Not suitable	Severe: high shrink-swell potential; low bearing capacity; high water table.	Very severe: slow percolation; high shrink-swell potential; low bearing capacity; high water table.	Severe: high water table; texture of surface layer.
Tensas-Alligator-Dundee complex, gently undulating (TdB):							
Tensas	Poor	Poor to a depth of 22 inches; poor to fair below 22 inches.	Not suitable	Not suitable	Severe: high shrink-swell potential; low bearing capacity; high water table.	Very severe: slow percolation; high shrink-swell potential; low bearing capacity; high water table.	Severe: high water table; texture of surface layer.
Alligator	Poor	Poor	Not suitable	Not suitable	Very severe: high shrink-swell potential; low bearing capacity; high water table; flooding.	Very severe: slow percolation; high shrink-swell potential; low bearing capacity; flooding.	Very severe: high water table; texture of surface layer; flooding.
Dundee	Fair	Fair	Not suitable	Not suitable	Slight	Moderate: moderate percolation.	Moderate: trafficability.
Tensas-Alligator-Dundee complex, undulating (TdD):							
Tensas	Poor	Poor to a depth of 22 inches; poor to fair below 22 inches.	Not suitable	Not suitable	Very severe: high shrink-swell potential; low bearing capacity; high water table.	Very severe: slow percolation; high shrink-swell potential; low bearing capacity; high water table.	Severe: high water table; exture of surface layer.
Alligator	Poor	Very poor	Not suitable	Not suitable	Very severe: high shrink-swell potential; low bearing capacity; high water table; flooding.	Very severe: slow percolation; high shrink-swell potential; low bearing capacity; high water table; flooding.	Very severe: high water table; texture of surface layer; flooding.

interpretations—Continued

limitation for—	Soil features that adversely affect suitability for engineering purposes						
Light industry	Farm ponds or reservoirs: Reservoir area	Farm ponds or reservoirs: Embankment	Road location	Irrigation: Sprinkler	Irrigation: Furrow or contour border	Drainage (open ditch)	Grading or leveling
Severe: low bearing capacity; high water table; high shrink-swell potential; high corrosion potential.	None	High shrink-swell potential; low strength and stability.	High water table; high shrink-swell potential; low traffic-supporting capacity.	Very slow intake when cracks seal; trafficability.	Very slow intake; poor material for borders and delivery canals because of cracking.	Very slow permeability; high water table.	Texture; wetness; difficult to work; workable for limited periods.
Severe: low bearing capacity; high water table; shrink-swell potential; high corrosion potential.	None	High shrink-swell potential; low strength and stability.	High water table; high shrink-swell potential; low traffic-supporting capacity.	Short irregular slopes; very slow intake when cracks seal; trafficability.	Slope; very slow intake; generally not feasible because of slope.	Very slow permeability; high water table; deep cuts generally needed through ridges.	Texture; slope; difficult to work; workable for limited periods; large amount of earth to be moved.
Very severe: low bearing capacity; high water table; high shrink-swell potential; high corrosion potential; flooding.	None	High shrink-swell potential; low strength and stability.	High water table; high shrink-swell potential; low traffic-supporting capacity; flooding.	Short irregular slopes; very slow intake when cracks seal; trafficability.	Slope; very slow intake; generally not feasible because of slope.	Very slow permeability; high water table; flooding; deep cuts generally needed through ridges.	Texture; slope; wetness in swales; difficult to work; workable for limited periods; large amount of earth to be moved.
Moderate: moderate bearing capacity; moderate corrosion potential.	None	Moderate strength and stability; moderate erodibility.	Moderate traffic-supporting capacity; moderately to highly erodible on ridges.	Short irregular slopes; slow intake when cracks seal; trafficaability.	Slope; very slow intake; generally not feasible because of slope.	Not needed	Texture; slope; large amount of earth to be moved.
Severe: low bearing capacity; high shrink-swell potential; high water table; high corrosion potential.	None	High shrink-swell potential; low strength and stability.	High water table; high shrink-swell potential; low traffic-supporting capacity.	Short irregular slopes; very slow intake when cracks seal; trafficability.	Slope; very slow intake; generally not feasible because of slope.	Very slow permeability; high water table; deep cuts generally needed through ridges.	Texture; wetness; slope; difficult to work; workable for limited periods; very large amount of earth to be moved.
Very severe: low bearing capacity; high shrink-swell potential; high water table; high corrosion potential; flooding.	None	High shrink-swell potential; low strength and stability.	High water table; high shrink-swell potential; low traffic-supporting capacity; flooding.	Short irregular slopes; very slow intake when cracks seal; trafficability.	Slope; very slow intake; generally not feasible because of slope.	Very slow permeability; high water table; flooding; deep cuts generally needed through ridges.	Texture; wetness; slope; difficult to work; workable for limited periods; very large amount of earth to be moved.

TABLE 6.—*Engineering*

Mapping units and map symbols	Suitability as source of— Topsoil	Road subgrade	Road subbase	Sand	Degree and kind of — Dwellings with— Public or community sewage system	Septic tank filter field	Recreational areas
Tensas-Alligator Dundee—Continued Dundee	Fair	Fair	Not suitable	Not suitable	Slight	Severe: slow percolation.	Moderate: texture of surface layer.
Tensas-Alligator clays, gently undulating (TcB): Tensas	Poor	Poor to a depth of 22 inches; poor to fair below 22 inches.	Not suitable	Not suitable	Severe: high shrink-swell potential; low bearing capacity; high water table.	Very severe: slow percolation; high shrink-swell potential; low bearing capacity; high water table.	Severe: high water table; texture of surface layer.
Alligator	Poor	Poor	Not suitable	Not suitable	Very severe: high shrink-swell potential; low bearing capacity; high water table; flooding.	Very severe: slow percolation; high shrink-swell potential; low bearing capacity; high water table; flooding in swales.	Very severe: high water table; texture of surface layer; flooding.
Tensas-Alligator clays, undulating (TcD): Tensas	Poor	Poor to a depth of 22 inches; poor to fair below 22 inches.	Not suitable	Not suitable	Severe: high shrink-swell potential; low bearing capacity; high water table.	Very severe: slow percolation; high shrink-swell potential; low bearing capacity; high water table.	Severe: high water table; texture of surface layer.
Alligator	Poor	Poor	Not suitable	Not suitable	Very severe: high shrink-swell potential; low bearing capacity; high water table; flooding.	Very severe: slow percolation; high shrink-swell potential; low bearing capacity; high water table; flooding.	Very severe: high water table; texture of surface layer; flooding.
Tunica clay (Tu).	Poor	Poor to a depth of 25 inches; poor to fair below 25 inches.	Not suitable	Not suitable	Severe: high shrink-swell potential; low bearing capacity; high water table.	Very severe: slow percolation; high shrink-swell potential; low bearing capacity; high water table.	Severe: high water table; texture of surface layer.

interpretations—Continued

limitation for—	Soil features that adversely affect suitability for engineering purposes						
Light industry	Farm ponds or reservoirs		Road location	Irrigation		Drainage (open ditch)	Grading or leveling
	Reservoir area	Embankment		Sprinkler	Furrow or contour border		
Slight	None	Moderate shrink-swell potential; moderate strength and stability.	Moderate traffic-supporting capacity; moderately to highly erodible.	Short irregular slopes; trafficability.	Slope; generally not feasible because of slope.	Not needed	Slope; very large amount of earth to be moved.
Severe: low bearing capacity; high shrink-swell potential; high water table; high corrosion potential.	None	High shrink-swell potential; low strength and stability.	High water table; high shrink-swell potential; low traffic-supporting capacity.	Short irregular slopes; very slow intake when cracks seal; trafficability.	Slope; very slow intake; generally not feasible because of slope.	Not needed	Texture; wetness; slope; very difficult to work; workable for limited periods; large amount of earth to be moved.
Very severe: low bearing capacity; high shrink-swell potential; high water table; high corrosion potential; flooding.	None	High shrink-swell potential; low strength and stability.	High water table; high shrink-swell potential; low traffic-supporting capacity; flooding.	Short irregular slopes; very slow intake when cracks seal; trafficability.	Slope; very slow intake; generally not feasible because of slope.	Very slow permeability; high water table; flooding; deep cuts generally needed through ridges.	Texture; wetness; slope; very difficult to work; workable for limited periods; large amount of earth to be moved.
Severe: low bearing capacity; high shrink-swell potential; high water table; high corrosion potential.	None	High shrink-swell potential; low strength and stability.	High water table; high shrink-swell potential; low traffic-supporting capacity.	Short irregular slopes; very slow intake when cracks seal; trafficability.	Slope; very slow intake; generally not feasible because of slope.	Not needed	Texture; wetness; difficult to work; workable for limited periods; large amount of earth to be moved.
Very severe: low bearing capacity; high shrink-swell potential; high water table; high corrosion potential; flooding.	None	High shrink-swell potential; low strength and stability.	High water table; high shrink-swell potential; low traffic-supporting capacity; flooding.	Short irregular slopes; very slow intake when cracks seal; trafficability.	Slope; very slow intake; generally not feasible because of slope.	Very slow permeability; high water table; flooding; deep cuts generally needed through ridges.	Texture; wetness; difficult to work; workable for limited periods; large amount of earth to be moved.
Severe: low bearing capacity; high shrink-swell potential; high water table; high corrosion potential.	Seepage in places if dug out below a depth of 25 inches.	High shrink-swell potential; low strength and stability.	High water table; high shrink-swell potential; low traffic-supporting capacity.	Very slow intake when cracks seal; trafficability.	Very slow intake; poor material for borders and delivery canals because of cracking.	Very slow permeability; high water table.	Texture; wetness; very difficult to work; workable for limited periods.

The percolation rate is one of the properties that has to be considered in selecting sites for dwellings served by septic tank systems. The percolation rate (see table 5) indicates the absorptive capacity of the soil. Other factors to be considered are the duration and frequency of flooding and the occurrence of a seasonal high water table.

Table 6 shows the degree of limitation of the soils for use as recreational areas and the soil features that adversely affect suitability. Trafficability, the soil property considered most significant, is the ease with which people can move about, on foot, on horseback, or with a small vehicle, such as a golf cart. The water table, the hazard of overflow, the slope, and the soil texture all affect trafficability. It is difficult to establish a good turf on Crevasse soils, for example, because the soils have low available water capacity. Slope is no limitation in this parish.

Also shown in table 6 is information about the use of soils as foundations for structures used in light industry, which include buildings other than residences that are used for stores, offices, and small industries. None of the buildings are more than two stories high, and all have either public or community sewage disposal facilities. The soil properties considered are the water table, the hazard of overflow, the bearing capacity, the shrink-swell potential, and the corrosion potential on untreated steel pipe. Data on acidity, drainage, and texture were used in estimating corrosion potential.

Wildlife [4]

Tensas Parish has one of the largest populations of white-tailed deer in the State, and much of the woodland is leased to deer-hunting clubs. The large tracts of woodland provide choice feeding areas for fox squirrels and gray squirrels also. The cultivated fields and interspersed pastures provide choice feeding areas for mourning doves, and borders between the pastures and woodland are excellent habitat for rabbits. The better drained fringe areas between the woodland and open land support limited numbers of bobwhite quail. Several large lakes provide good fishing. Farm ponds, however, are difficult to manage.

Bobwhite quail are most abundant in the better drained areas where there is considerable edge vegetation. They require grass and weeds for feeding and shrubby or woody cover for protection. Choice foods are acorns, browntop millet, panicgrass, partridgepea, ragweed, sweetgum, vetch, woolly croton, lespedeza, corn, grain sorghum, soybeans, and wheat.

Deer require large wooded areas interspersed with grassy openings and fields. Deer are mainly browsers. They feed on the leaves, stems, and twigs of greenbriers, rattan, haw, honeysuckle, and other undergrowth plants. They like herbs and tender grasses in spring and summer and acorns in fall and winter. They like such green winter plants as clover, ryegrass, tall fescue, oats, and wheat, and summer plants, such as soybeans, grain sorghum, and corn. Deer drink water daily.

Mourning doves feed almost entirely on seeds and prefer open fields without thick ground cover. They do not scratch for food. They roost and nest in trees; usually they prefer the smaller trees for nesting. Choice foods are browntop millet, corn, grain sorghum, wheat, soybeans, and grass seeds. They require water daily, within short distances of feeding areas.

Dabbling ducks, such as mallards, pintails, and teal, prefer to feed in water less than 28 inches deep. They like acorns, browntop millet, wild millet, corn, rice, and smartweed. Diving ducks, such as the ringnecked, scaup, and canvasback, can feed completely submerged. Ducks sometimes feed in unflooded fields of corn and other grain; they prefer fields of 20 acres or more.

Swamp rabbits prefer wooded streams and drains or semiswamps. Cottontails prefer well-drained brier patches, crop fields, fence rows, and grassy meadows. Rabbits eat almost all plants that are green and tender but prefer green brier, rattan, blackberry, dewberry, and tree seedlings. Green cover crops or improved pastures bordered by refuge cover are excellent feeding areas.

Squirrels nest, den, and feed in wooded areas but venture out into adjacent cornfields. Woodland predominantly of oaks and pecan is best. An understory of briers, vines, and shrubs is important in spring and summer. Good woodland management usually is beneficial to squirrels.

The soils of Tensas Parish have been assigned to seven wildlife suitability groups. In table 7 are brief descriptions of these groups and ratings that show the suitability of the soils in each group for different habitat elements and kinds of wildlife. The ratings reflect the potential for habitat but not the existing habitat. To find the wildlife suitability classification for any given soil, refer to the "Guide to Mapping Units."

"Grain and seed crops," as used in table 7, refers to domestic annual herbaceous plants established by planting to furnish choice food for wildlife. Examples are browntop millet, corn, grain sorghum, wheat, soybeans, Japanese millet, vetch, oats, and Texas millet. A rating of *good* indicates conditions favorable for repeated annual planting of a variety of crops without intervening sod crops. A rating of *moderate* indicates conditions favorable for annual planting of a few crops and the need for water-disposal practices and intervening soil-building crops. A rating of *poor* indicates limitations so severe that grain and seed crops cannot be grown or should not be planted.

The heading "Grasses and legumes" refers to domestic grass and herbaceous legumes established by planting to furnish choice food and cover for wildlife. Examples are Pensacola bahiagrass, tall fescue, clover, rescuegrass, annual lespedeza, and ryegrass. A rating of *good* indicates conditions favorable for planting a variety of grasses and legumes and maintaining adequate stands for several years without renovation and heavy fertilization. A rating of *moderate* indicates conditions favorable for planting a few grasses and legumes and the need for fertilization, liming, and renovation to maintain adequate stands. A rating of *poor* indicates severe limitations that interfere with growth or maintenance of stands.

"Wild herbaceous dryland plants" refers to native or introduced grasses or forbs (weeds) that generally are established naturally and that provide food and cover for wildlife. Examples are bluestem, common ragweed (small), wild lespedeza, woolly croton, and partridgepea. A rating of *good* indicates conditions favorable for the establishment and vigorous growth of a variety of uncultivated, herbaceous dryland plants that produce choice

[4] Prepared by CARL H. THOMAS, biologist, Soil Conservation Service.

TABLE 7.—*Wildlife groups*

[Refer to "Guide to Mapping Units" to find wildlife classification for any given soil]

Wildlife group	Potential for habitat elements						Po
	Grain and seed crops	Grasses and legumes	Wild herbaceous dryland plants	Wild herbaceous wetland plants	Hardwoods and associated understory	Shallow water impoundments	Quail, and r
Group 1. Sandy, somewhat excessively drained soils; low available water capacity; dominantly on ridges and in swales; small acreage cleared and used mainly for pasture.	Moderate	Moderate	Moderate	Poor	Moderate	Poor	Moder
Group 2. Loamy, somewhat poorly drained to well-drained soils; high available water capacity; slow to moderate permeability; level to gently sloping; on ridges and in swales; large acreage cleared and used for cultivated crops and pasture; best potential in parish for dove and quail habitat; uncleared areas excellent deer range.	Good	Good	Moderate	Poor	Good	Poor	Good
Group 3. Loamy and clayey, poorly drained to somewhat poorly drained soils; moderate available water capacity; slow permeability; dominantly level; small acreage cleared and used for cultivated crops and pasture; one of best deer ranges in parish; if drained, good habitat for dove and quail.	Good	Good	Poor	Good	Good	Good	Moder good
Group 4. Clayey, poorly drained to somewhat poorly drained soils; moderate available water capacity; very slow permeability; dominantly on ridges and in swales; small acreage cleared and used for cultivated crops and pasture; deer habitat one of best in parish; quail and dove habitat limited to ridges because of wetness in swales; duck habitat during and after heavy rain.	Moderate	Moderate	Poor	Moderate	Good	Poor	Moder
Group 5. Sandy and loamy, well-drained to excessively drained soils; gently sloping; on ridges and in swales on river side of levee; subject to overflow; small acreage cleared and used mainly for pasture; duck habitat poor because of soil permeability.	Poor	Poor	Moderate	Poor	Moderate	Poor	Moder
Group 6. Clayey, poorly drained soils; very slow permeability; subject to frequent overflow; level; on ridges and in swales; most of acreage uncleared; slight understory growth.	Poor	Poor	Poor	Moderate	Moderate	Poor	Poor
Group 7. Soils affected by salt water and oil; little or no vegetation.	Poor	Poor	Poor	Poor	Poor	Poor	Poor

wildlife food and cover. A rating of *moderate* indicates conditions that limit the variety of plants but permit vigorous growth of a few choice species. A rating of *poor* indicates limitations so severe that only one or two species grow well; generally, these species are of little value to wildlife.

"Wild herbaceous wetland plants" refers to plants that grow in moist to wet places. Examples are smartweed, rush, beakrush, sedge, wild millet, and smutgrass. Wetland food plants do not include submerged and floating aquatic plants that produce food for aquatic wildlife. A rating of *good* indicates conditions favorable for the establishment and vigorous growth of a variety of uncultivated herbaceous wetland plants that produce choice wildlife food. A rating of *moderate* indicates conditions that limit the variety of plants but permit vigorous growth of a few choice species. A rating of *poor* indicates limitations so severe that only one or two species grow well; generally, these species are of little value to wildlife.

"Hardwoods and associated understory" refers to nonconiferous trees, shrubs, and vines that produce fruits, nuts, buds, twigs, or foliage used as food by wildlife, and that commonly are established naturally. Examples are white oak, red oak, gum, pecan, honeysuckle, grape, smilax, briers, rattan, and hackberry. A rating of *good* indicates conditions favorable for the vigorous growth of a variety of trees and shrubs that are important wildlife food, and for rapid and vigorous development of the understory. A rating of *moderate* indicates conditions favorable for the vigorous growth of a few species of trees and shrubs that are choice wildlife food and of many other species that are not choice food. It also indicates somewhat retarded growth of the understory. A rating of *poor* indicates conditions under which few or no choice species grow, or growth is too sparse to be significant.

"Shallow water impoundments" are impoundments generally not more than 4 feet deep. They provide habitat for ducks. A rating of *good* indicates that the soil is nearly level and has impervious layers that retard seepage. A rating of *poor* indicates that the soil is sloping, has permeable layers that allow seepage, or is subject to overflow.

The ratings in the columns that designate specified kinds of wildlife are based on the potential of the soils to produce the habitat elements that will insure good populations of these species. Present land use was not considered. A rating of *good* indicates that there are few or no limitations, and that habitat elements generally are easily created, improved, or maintained. A rating of *moderate* indicates moderate limitations that affect the planting, establishment, or growth of choice wildlife food and cover plants. A rating of *poor* indicates that there are severe limitations, and that habitat elements are difficult or impractical to create, improve, or maintain.

Formation and Classification of the Soils [5]

The earth is a ball that has a core of rock. In places the rock extends to the surface, but for the most part it is covered with soil, water, and, to a lesser extent, beds of salt. The whole of the earth is surrounded by air.

The earth is about 3 billion years old. During this time, lava has flowed from cracks and volcanoes, huge masses of ice have moved from the poles toward the equator and spread over plains and hills, and melting waters from these ice sheets have formed huge rivers that have carved wide valleys as they carried debris to the seas.

Tensas Parish is in the valley of one such huge river—the Mississippi. As it has done in the past, the river deposits massive loads of mud whenever it reaches flood stage and pours over its banks.

Factors of Soil Formation

The five major factors that affect soil formation are plants and animals, climate, parent material, relief, and age of landform. These factors are discussed separately in the following pages.

Plants and animals

Plants help in the formation of soils by sending their roots into the earthy parent material. Plant roots, even though small, are strong. They tend to break up the soil, rearrange the soil particles, force openings into the lower part of the soil, and modify porosity. Animals burrow beneath the surface and mix the soil. Earthworms and crayfish for example, are active in the soils of Tensas Parish. When animals and plants die, their remains decay to form humus in the soil. The humus serves as a storehouse for plant nutrients.

The native vegetation in Tensas Parish consisted mainly of southern hardwoods. Soils that formed under hardwoods are medium to low in organic-matter content.

Grass vegetation influenced the soils in several small areas in the parish. In these areas the soils contain a large amount of organic matter and are dark colored to a depth of 2 feet. They are in 3- to 30-acre tracts in the vicinity of Indian mounds. Presumably, the Indians built these mounds in the natural clearings of grassland within the forests. These tracts, which were too small to be mapped separately, are included with Commerce silt loam, 0 to 1 percent slopes.

Climate

The climate is warm and moist. It is uniform throughout the parish and alone does not account for differences among soils within the parish. The average annual temperature is 65.8° F. The average temperature is 50.2° in January and 81.4° in July. The average annual rainfall is 53.92 inches, nearly 30 inches of which falls during the period December through April. This warm-moist climate promotes rapid soil development. The warm temperature hastens chemical reaction. Plant and animal remains decompose rapidly, and the water moving through the soil removes dissolved or suspended material. Soil development is hastened further because the soil is not frozen for prolonged periods.

Parent material

Along and parallel to the rivers are low ridges, called natural levees. The levees are ¼ to 1½ miles wide. They are highest near the river because of the sudden loss of transporting power, or the loss of velocity, when the rivers

[5] This section was prepared by LINDO J. BARTELLI, principal soil correlator, SCS, Fort Worth, Texas, and TRACY A. WEEMS, soil scientist.

overspread their banks. As transporting power is lost, sand is dropped first, silt next, and clay last. Consequently, the natural levees are sandy and silty. The soils that developed in this parent material are light colored, permeable, and somewhat poorly drained to well drained. On the youngest natural levees are Robinsonville, Commerce, and Bruin soils. On the older natural levees are Dundee and Goldman soils.

Between the river and the natural levees are deposits of sand, silt, and clay, called point-bar deposits. Alluvial land types are on the most recent deposits. Crevasse soils formed on the young point-bar deposits that are stabilized.

Back-swamp deposits are laid down in the flood basins back of the natural levees. They are sediments dropped from slowly moving water or still water and are silt or clay in texture. Soils that formed in this kind of parent material, for example, Alligator and Sharkey soils, are very slowly permeable and poorly drained.

The pattern of coarser sediments near the channel and fine sediments in the back swamps is common along the Tensas and Mississippi Rivers, as well as along old abandoned river courses. Many old abandoned cutoffs and oxbow lakes are left as evidence of former river courses. In places where natural levees have been cut out, silty or sandy sediments have been spread over the back-swamp clays. Thus, the normal pattern of sediment distribution has been destroyed, and in places beds of alluvium of widely contrasting textures have been superimposed. Examples of soils formed in this type of parent material are Sharkey silt loam, which formed in silt loam over clay, and Newellton soils, which formed in clay over silt loam or very fine sandy loam.

In general, the soils that form in silty and sandy parent material have a lower capacity to hold nutrients than those that form in clay, but they are productive because of their greater ability to transmit water. They contain an abundance of weatherable minerals that release the nutrients needed for plant growth.

In Tensas Parish, the dominant clay minerals of soils developed in the alluvium are montmorillonite, mica-illite, and vermiculite. Less significant and in smaller amounts are feldspar, quartz, and iron.

Relief

The shape of the landscape influences soil formation because it affects drainage, erosion, plant cover, and soil temperature.

Most of Tensas Parish is nearly level or has a slope of less than 3 percent. In some parts, mainly in areas of ridge-swale relief, the slope is as much as 8 percent.

The variations in relief, even though slight, affect the soils of the parish. For example, Robinsonville and Bruin soils formed in the same permeable parent material. The gently sloping Robinsonville soils are on the crests of the ridges and receive no extra runoff from surrounding areas. They are well drained and have a brown, unmottled, weakly developed subsoil. The nearly level Bruin soils receive more runoff than Robinsonville soils. They have a fluctuating water table, are moderately well drained, and have a dark-brown, mottled, moderately well developed subsoil.

Some areas of the parish are characterized by ridge-swale topography. The ridges and swales are low and parallel and are generally several hundred feet long and no more than 150 feet wide. The difference in elevation is about 1 to 6 feet. Water generally stands in the swales during winter and early in spring. An example of a soil that has ridge-swale relief is Alligator clay, undulating.

Age of landform

Time is required for soil formation—usually long periods. The length of time that soil-forming forces have been able to act on parent material is commonly reflected in the characteristics of the soil.

The soils in Tensas Parish range from young soils that have little or no development to older soils that have somewhat pronounced development.

Commerce silt loam is an example of a young soil. It retains most of the characteristics of its alkaline, loamy parent material, except for a darkening of the surface layer and a weakly developed B horizon. The Dundee soil is an example of an older soil that formed in the same kind of parent material. It has a subsoil of very acid clay loam that bears little resemblance to the original parent material.

Figure 8 shows how pH changes with increasing depth in the fresh alluvial sediments of the Commerce and Dundee soils. Since the topography is similar for both

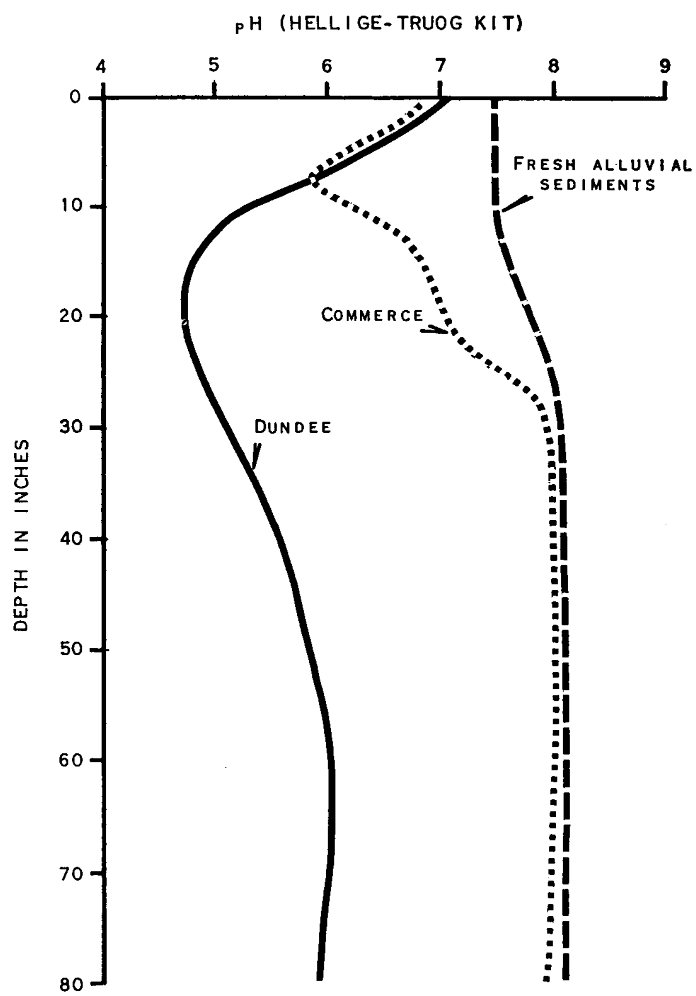

Figure 8.—pH of soils of differing ages.

soils, it is assumed that the lower the pH, that is, the more acid the soil, the more leaching, and presumably, the older the soil.

Representative Soil Horizons

The action of the soil-forming factors is reflected in the soil profile, which is a succession of horizons, or layers, from the surface down to unaltered parent material. The horizons differ in one or more properties, such as color, texture, thickness, structure, consistence, porosity, and reaction.

The major horizons in the soils of the parish are ochric epipedons, cambic horizons, and argillic horizons.

All of the soils of the parish have ochric epipedons (A horizons). Ochric epipedons are typically light colored and contain some organic matter. Even if they are dark colored, they are too thin to qualify as mollic epipedons.

The argillic and cambic horizons are typically subsoil horizons, but after erosion or land leveling, they may occur at the surface. Three soils of the parish, Dundee, Goldman, and Tensas, have argillic horizons. Argillic horizons have a significant accumulation of silicate clays. The clay films on the surface of peds indicate a downward movement of clay from the epipedons (A horizons).

The Newellton, Tunica, Commerce, and Bruin are examples of soils that have cambic (B) horizons. These are horizons in which soil-forming processes have altered the earthy parent material enough to form structure, to liberate free iron oxides and to form silicate clays.

Included with the Commerce soils are a few small areas that have mollic epipedons, or a thick, dark-colored A horizon in which there is a significant accumulation of organic matter. These areas are adjacent to Indian mounds and are included with Commerce soils.

Some of the soils of the parish lack cambic or argillic horizons. The letter "C" is used to designate horizons below the epipedon in these soils. The Crevasse soil, for example, lacks diagnostic horizons. It has an ochric epipedon over earthy parent material that is only slightly altered.

Figure 9 shows three strongly contrasting soil profiles. The Dundee soil has an argillic horizon. The Crevasse soil, which is very young, lacks developed horizons. The Leon soil, though not correlated in Tensas Parish, is used to show a soil that formed under different environmental conditions. It has a developed spodic subsoil horizon. Spodic horizons have an accumulation of iron and organic matter that has been leached from the overlying surface horizons.

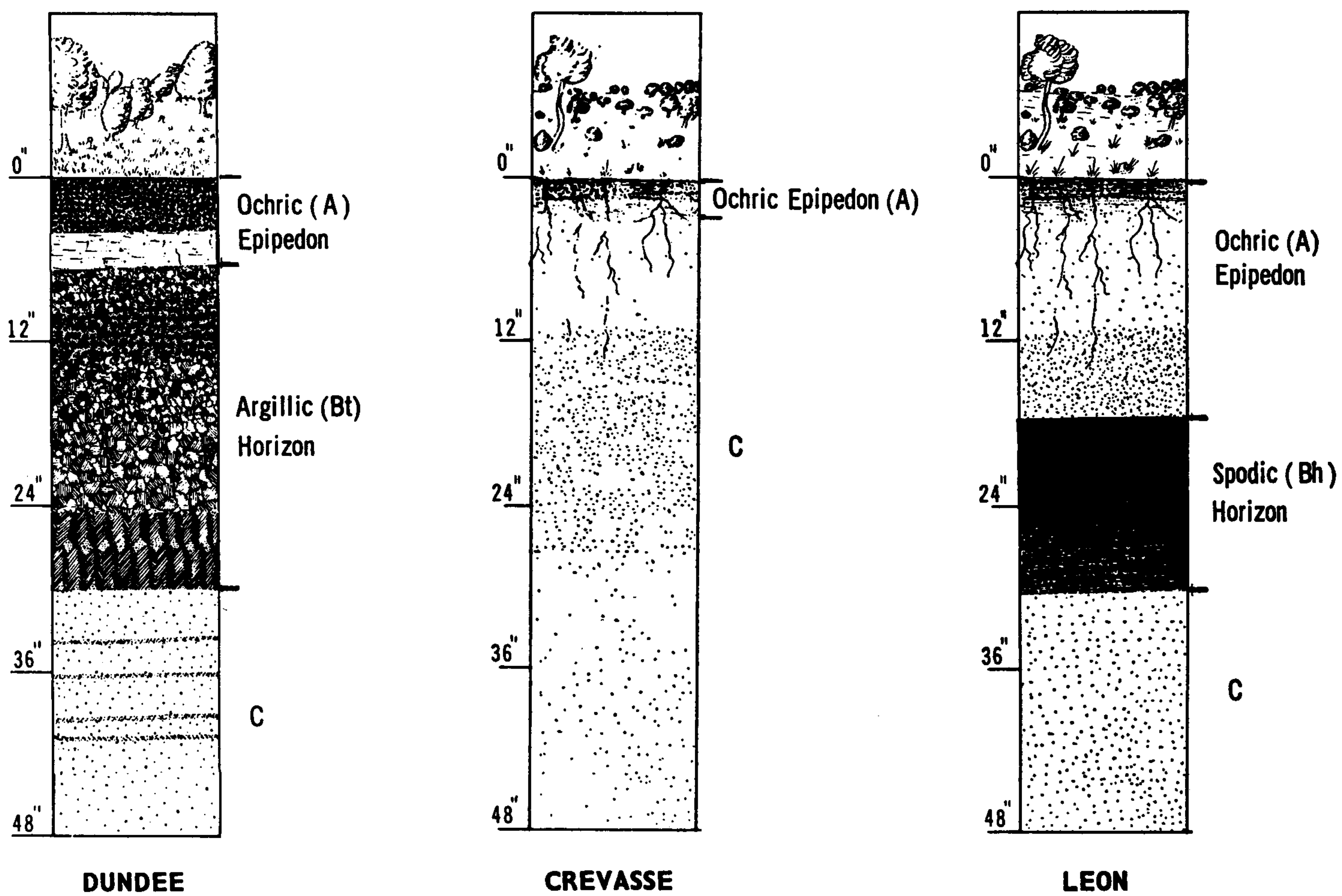

Figure 9.—**Three strongly contrasting soil profiles. The Leon soil formed under different vegetation from that in Tensas Parish and in a different climate.**

Grouping of the Soils in Higher Categories

The purpose of soil classification is to help us remember the significant characteristics of soils, to assemble our knowledge about them, to see their relationships to one another in their environment, and to develop principles of their behavior and response to manipulation. Then through the use of soil maps, these principles can be applied to specific fields and other tracts of land.

For this purpose, the current classification system was designed (*14*). Adopted in 1965 in the United States, by the Cooperative Soil Survey, it replaces the revised classification of Baldwin, Kellogg, Thorp (*2*) and Thorp and Smith (*12*).

The current classification is a comprehensive system designed to accommodate all soils. In this system, classes are defined in terms of observable or measurable properties, selected primarily to group soils of similar morphological characteristics. The properties selected, however, have either affected soil genesis or resulted from soil genesis. This system has a technical nomenclature that is both connotative and distinctive.

There are six categories in the current system. Beginning with the most inclusive, these categories are the order, the suborder, the great group, the subgroup, the family, and the series. There are few classes in the highest category, the order, and many classes in the lowest category, the series. Soils that are similar in important characteristics are grouped at each level in the system. For example, generalizations of common properties that tend to give broad climatic grouping of soils are used to separate the orders. Two exceptions are the Entisols and Histosols, both of which occur in many different climates. The properties used to separate the suborders are primarily those that reflect either the presence or the absence of waterlogging, or of soil differences that result from differences in climate or vegetation.

The great groups are separated on the basis of uniformity of kinds and sequences of major soil horizons and features. The horizons used are those in which clay, iron, or humus accumulate, or those in which a pan forms and interferes with root development or water movement.

The subgroups are subdivisions of the great groups. They consist of the central (typic) segments or intergrades that have, in addition to properties of the great group, one or more properties of another great group, suborder, or order.

The families are separated within a subgroup primarily on the basis of properties important to the growth of plants or to engineering behavior. These properties include texture, mineralogy, reaction, soil temperature, permeability, thickness of horizons, and consistence.

The series is a group of soils that have major horizons that are similar, except for texture of the surface layer, in important characteristics and in arrangement in the profile.

Classification of the Soils

The twelve soil series of Tensas Parish are classified as shown in table 8. The Tensas and Dundee soils are Alfisols. Dundee soils are placed in the Aeric Ochraqualf subgroup, and Tensas soils in the Chromudertic Ochraqualf subgroup. Both soils are somewhat poorly drained to poorly drained and have an argillic horizon in which low-chroma colors are predominant. Both need drainage. Tensas soils are finer textured than Dundee soils. Goldman soils also are Alfisols, but because of better natural drainage and brighter colors in the argillic horizon, they are placed in the Aquic Hapludalf subgroup.

Fluvents and Psamments are the only Entisols mapped in Tensas Parish. These are the young soils of the flood plains. Robinsonville soils are placed in the Typic Udifluvent subgroup, and the sandier Crevasse soils in the Typic Udipsamment subgroup. Both soils are well drained.

Inceptisols are widespread throughout Tensas Parish. These are the soils that have slight profile development. Haplaquepts are the wet, gray-colored soils that require drainage if they are to be used for cropping. Mhoon soils are the wettest and have the grayest colors. They are classified in the Fluventic Haplaquept subgroup. Newellton soils are better drained than Mhoon soils, have a brown subsurface soil layer, and are classified in the Aeric Fluventic

TABLE 8.—*Classification of the soils of Tensas Parish*

Series [1]	Family	Subgroup	Order
Alligator	Very fine, montmorillonitic, acid, thermic	Vertic Haplaquepts	Inceptisols.
Bruin	Coarse-silty, mixed, thermic	Aquic Fluventic Eutrochrepts	Inceptisols.
Commerce	Fine-silty, mixed, nonacid, thermic	Aeric Fluventic Haplaquepts	Inceptisols.
Crevasse	Mixed, thermic	Typic Udipsamments	Entisols.
Dundee	Fine-silty, mixed, thermic	Aeric Ochraqualfs	Alfisols.
Goldman	Coarse-silty, mixed, thermic	Aquic Hapludalfs	Alfisols.
Mhoon	Fine-silty, mixed, nonacid, thermic	Fluventic Haplaquepts	Inceptisols.
Newellton	Clayey over loamy, mixed, nonacid, thermic	Aeric Fluventic Haplaquepts	Inceptisols.
Robinsonville	Coarse-loamy, mixed, nonacid, thermic	Typic Udifluvents	Entisols.
Sharkey	Very fine, montmorillonitic, nonacid, thermic	Vertic Haplaquepts	Inceptisols.
Tensas	Fine, montmorillonitic, thermic	Chromudertic Ochraqualfs	Alfisols.
Tunica	Clayey over loamy, montmorillonitic, nonacid, thermic.	Vertic Haplaquepts	Inceptisols.

[1] New soil series must be established and concepts of some established series, especially older ones that have been used little in recent years, must be revised in the course of the soil survey program across the country. A proposed new series has tentative status until review of the series concept at State, regional, and national levels of responsibility for soil classification result in a judgment that the new series should be established. All of the soil series described in this publication except the Bruin and Tensas series were established before this survey was made. The Bruin and Tensas series had tentative status when the survey manuscript was sent to the printer.

Haplaquept subgroup. Sharkey, Alligator, and Tunica soils contain a large amount of swelling clay. These soils shrink and crack when dry and are unstable for use in highways and foundations. They are classified in the Vertic Haplaquept subgroup. Bruin soils, which occur along natural levees, are moderately well drained. They have brown soil colors and some gray mottles in the lower part of the profile. The Bruin series is placed in the Aquic Fluventic Eutrochrept subgroup.

Laboratory Data

The physical and chemical properties of selected soils of seven series in Tensas Parish are shown in table 9. The profiles of these soils are described in the section "Descriptions of the Soils." Samples of Commerce and Dundee soils were analyzed by the SCS Soil Survey Laboratory in Lincoln, Nebr. Samples of Alligator, Bruin, Goldman, Robinsonville, and Sharkey soils were analyzed by the Soils Laboratory of the Louisiana Agricultural Experiment Station.

Methods of Sampling and Analysis

Seven samples were collected from pits at different locations. The samples were air dried, rolled, and crushed, and a suitable subsample was passed through a 2-millimeter, square-holed sieve. The results reported in table 9 are on an oven-dry basis. Essentially the same procedures were used by both laboratories except for the determinations of clay and of extractable calcium and magnesium.

The Louisiana Agricultural Experiment Station determined particle size by using a modification of the Bouyucos hydrometer procedure. The Soil Survey Laboratory determined particle size by the pipette method (*6*, *7*, *9*). Water content at 1/3 bar was determined on natural soil pieces, using pressure plate apparatus. Water content at 15 bar was determined on sieved samples, using pressure membrane apparatus (*13*, *17*). The Soil Survey Laboratory determined bulk density on clods equilibrated at 1/3 bar. The Louisiana Experiment Station determined bulk density on clods in a moist field state. Extractable bases were determined by the Louisiana Experiment Station on original ammonium acetate extracts with a Beckman DU flame spectrophotometer, but the Lincoln Soil Survey Laboratory extracted calcium as calcium oxalate and magnesium as magnesium ammonium phosphate (*11*). Extractable acidity was determined by the triethanolamine method (*11*). The cation exchange capacity was determined by direct distillation of adsorbed ammonia (*11*). Organic carbon was determined by a modification of the Walkley-Black wet-combustion method (*7*). The measurements of pH were determined by a glass electrode, using a soil-water ratio of 1:1. Iron was extracted from the soil with sodium hydrosulfite and was determined with standard potassium dichromate (*5*). Available phosphorus was determined by the Bray strong acid method.

TABLE 9.—*Physical*

[Dashes indicate

Soil type and sample number	Horizon	Depth	Particle-size distribution							
			Sand						Silt (0.05–0.002 mm.)	Clay (less than 0.002 mm.)
			Total	Very coarse (2–1 mm.)	Coarse (1–0.5 mm.)	Medium (0.5–0.25 mm.)	Fine (0.25–0.10 mm.)	Very fine (0.10–0.05 mm.)		
		In.	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*
Alligator clay (S64La–54–6).	A1	1 to 6	3.0	------	------	------	------	------	34.3	62.7
	AC	6 to 13	1.4	------	------	------	------	------	33.3	65.3
	C1	13 to 20	2.2	------	------	------	------	------	36.0	61.8
	C2	20 to 30	3.0	------	------	------	------	------	42.5	54.5
	C3	30 to 42	.4	------	------	------	------	------	32.2	67.4
	C4	42 to 54	[1]	------	------	------	------	------	31.8	68.2
	C5	54 to 60	------	------	------	------	------	------	------	------
Bruin silt loam (S64La–54–2).	Ap	0 to 7	25.4	------	------	------	------	------	63.4	11.2
	A12	7 to 10	20.0	------	------	------	------	------	60.2	19.8
	B2	10 to 18	19.1	------	------	------	------	------	62.5	18.4
	B3	18 to 24	33.6	------	------	------	------	------	56.5	9.9
	C1	24 to 34	40.1	------	------	------	------	------	51.0	8.9
	C2	34 to 46	33.0	------	------	------	------	------	58.1	8.9
	C3	46 to 54	------	------	------	------	------	------	------	------
	C4	54 to 60	------	------	------	------	------	------	------	------

See footnotes at end of table.

Interpretation of Soil Characterization Data[6]

All of the soils sampled, the analyses of which are shown in table 9, formed in alluvium of the Mississippi River.

Alligator soils are more acid than Sharkey soils and have less available phosphorus and higher bulk density. Both soils contain carbonates, but the carbonates are at a greater depth in Alligator soils. The more acid reaction and the greater depth to carbonates indicate that Alligator soils are more strongly leached than Sharkey soils. These differences are presumed to be caused by differences in age.

Dundee soils are more acid and have lower base saturation than Commerce soils. Commerce soils have about 85 percent of the exchange capacity saturated with bases, and Dundee soils about 70 percent. Dundee soils have higher bulk density and lower porosity than Commerce soils. Such differences indicate stronger leaching in Dundee soils. Hence, Dundee soils are presumed to be the older.

Goldman soils are the most acid of the soils that formed in medium-textured parent material, Bruin soils are intermediate, and Robinsonville soils are the least acid. Goldman soils have about 65 percent of the exchange capacity saturated with bases, Bruin soils about 75 percent, and Robinsonville soils about 80 percent. The data indicate that Goldman soils are more leached and more weathered than the other two soils. Goldman soils are presumed to be older than the other two soils because they are more strongly leached and they have the greater translocation of clays.

Bruin, Commerce, and Robinsonville soils are the least acid of all the soils analyzed. They are high in phosphorus. Alligator soils are the most acid and are low in phosphorus. Bruin and Commerce soils have the highest available water capacity (1/3-bar minus 15-bar moisture) of all the soils analyzed. They also have the highest silt content.

Estimates of dominant clay minerals are given in table 10. Samples were taken from certain horizons of the same soils selected for the analyses reported in table 9. The coarse (2.0–0.2 micron) and fine (less than 0.2 micron) clays were separated from the selected horizons. The estimates were based on X-ray diffraction data.

In general, montmorillonite dominates the finer fraction. The percentage of mica-illite, kaolinite, and quartz in this fraction is generally less than 10. Vermiculite generally dominates the coarse fraction. The percentage of vermiculite is more than 40 in most horizons, and the percentage of kaolinite and quartz is less than 10. The percentage of mica in the coarse fraction is less than minimum reportable amount and is not shown in table 10.

The uniformity in the proportions of the minerals within the clay fractions of these soils indicates a similar origin for the clays. The lack of minerals other than montmorillonite in the fine clay from the Dundee soil indicates, most likely, that the Dundee soil is more highly weathered than any of the other soils. The main differences in the physical and chemical properties must be attributed to differences other than basic mineralogical composition.

[6] KEITH K. YOUNG, soil correlator, SCS, Alexandria, La., and DR. A. G. CALDWELL, professor of agronomy, Louisiana State University, prepared this section.

and chemical data

analyses not made]

Water content		Bulk density 1/3-bar	Extractable cations (meq. per 100 grams of soil)				Extractable acidity	Cation exchange capacity (NH_4OAc)	Organic carbon	Reaction (1:1)	Extractable iron as Fe	Available phosphorus
			Extractable bases									
1/3-bar	15-bar		Ca	Mg	Na	K						
Pct.	*Pct.*	*Gm./cc.*					*Meq./100 gm.*	*Meq./100 gm.*	*Pct.*	*pH*	*Pct.*	*Parts per million*
-------	26.6	----------	19.7	7.5	0.3	0.9	17.8	40.1	2.06	4.8	--------	55
-------	26.4	----------	21.3	8.2	.4	.7	19.8	41.4	1.25	4.8	--------	45
36.4	25.3	1.20	19.8	7.8	.6	.7	16.2	40.1	.87	5.0	--------	50
33.7	22.5	1.32	19.6	8.1	.9	.6	13.2	37.3	.53	5.2	--------	70
39.2	27.7	1.26	25.6	11.5	1.4	.9	13.2	43.4	.52	5.2	--------	45
37.6	26.3	1.36	28.2	12.2	1.9	.9	8.7	44.7	.44	6.6	--------	50
-------	------	----------	------	------	------	------	--------	--------	--------	--------	--------	---------
27.8	8.8	1.45	6.8	1.8	.2	.4	4.0	9.8	.59	5.4	--------	245
29.3	10.2	1.45	10.2	2.9	.2	.3	4.3	15.4	.35	6.2	--------	215
29.5	9.9	1.37	10.9	3.0	.2	.3	4.1	14.8	.29	6.2	--------	225
29.4	5.7	1.39	7.1	2.0	.2	.2	2.6	9.6	.14	6.3	--------	305
27.7	5.1	1.42	6.5	2.3	.2	.2	2.2	8.8	.10	6.5	--------	295
29.8	5.5	1.41	5.7	2.7	.2	.2	1.6	8.8	.10	7.4	--------	335
-------	------	----------	------	------	------	------	--------	--------	--------	--------	--------	---------
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TABLE 9.—*Physical and*

Soil type and sample number	Horizon	Depth	Particle-size distribution							
			Sand						Silt (0.05–0.002 mm.)	Clay (less than 0.002 mm.)
			Total	Very coarse (2–1 mm.)	Coarse (1–0.5 mm.)	Medium (0.5–0.25 mm.)	Fine (0.25–0.10 mm.)	Very fine (0.10–0.05 mm.)		
		In.	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*
Commerce silt loam (S63La-54-1).	Ap1	0 to 6	26.2	(1)	(2)	.2	3.1	22.9	64.1	9.7
	Ap2	6 to 10	24.5	(1)	(2)	.1	2.9	21.5	63.5	12.0
	B2	10 to 19	12.4	(1)	(2)	(2)	2.1	10.3	55.7	31.9
	B3	19 to 25	16.5	(1)	(1)	.1	1.8	14.6	58.4	25.1
	C1	25 to 32	22.4	(2)	.2	.2	1.0	21.0	56.7	20.9
	A1b1	32 to 36	15.9	(1)	.1	.1	.7	15.0	58.4	25.7
	C2	36 to 44	24.4	(2)	.2	.2	1.1	22.9	62.2	13.4
	C3	44 to 54	14.6	(2)	.1	.1	.8	13.6	70.9	14.5
	A1b2	54 to 60	1.5	(1)	.1	(2)	.1	1.3	56.5	42.0
	C4	60 to 62	2.0	(1)	(2)	(2)	.1	1.9	76.0	22.0
	A1b3	62 to 70	.6	(1)	(2)	(2)	(2)	.6	62.4	37.0
Dundee silt loam (S63La-54-3).	Ap1	0 to 5	44.8	(2)	.1	.2	4.3	40.2	42.8	12.4
	Ap2	5 to 8	44.8	(2)	.1	.2	4.2	40.3	42.9	12.3
	B21t	8 to 15	27.9	(1)	.1	.1	1.0	26.7	42.4	29.7
	B22t	15 to 23	30.7	(2)	.1	.1	2.5	28.0	42.3	27.0
	B3t	23 to 30	44.3	.1	.2	.2	9.3	34.5	35.0	20.7
	C1	30 to 41	57.6	(1)	.2	.2	9.1	48.1	28.7	13.7
	C2	41 to 53	36.1	(1)	.2	.3	3.5	32.1	49.2	14.7
	C3	53 to 65	52.5	(1)	.1	.2	9.3	42.9	38.6	8.9
	C4	65 to 76	36.2	(1)	.1	.2	7.2	28.7	49.0	14.8
	C5	76 to 90	29.6	(1)	.1	.2	6.0	23.3	53.6	16.8
	C6	90 to 102	76.3	(1)	.1	.6	39.9	35.7	18.7	5.0
Goldman very fine sandy loam (S64La-54-4).	Ap	0 to 5	33.9	------	------	------	------	------	51.6	14.5
	B21t	5 to 9	35.8	------	------	------	------	------	44.9	19.3
	B22t	9 to 18	56.5	------	------	------	------	------	27.6	15.9
	B31	18 to 24	73.3	------	------	------	------	------	14.0	12.7
	B32	24 to 32	69.4	------	------	------	------	------	16.5	14.1
	C1	32 to 44	43.7	------	------	------	------	------	39.1	17.2
	C2	44 to 60	64.3	------	------	------	------	------	23.9	11.8
	C3	60 to 72	------	------	------	------	------	------	------	------
	C4	72 to 88	------	------	------	------	------	------	------	------
Robinsonville very fine sandy loam (S64La-54-1).	Ap	0 to 8	26.9	------	------	------	------	------	61.4	11.7
	A12	8 to 16	27.4	------	------	------	------	------	60.1	12.5
	C1	16 to 21	63.6	------	------	------	------	------	29.1	7.3
	C2	21 to 29	63.8	------	------	------	------	------	29.9	6.3
	C3	29 to 36	37.1	------	------	------	------	------	54.3	8.6
	C4	36 to 45	34.3	------	------	------	------	------	59.4	6.3
	C5	45 to 50	20.4	------	------	------	------	------	69.7	9.9
	C6	50 to 55	28.5	------	------	------	------	------	61.6	9.9
Sharkey clay (S64La-54-7).	Ap	0 to 5	------	------	------	------	------	------	22.8	77.2
	A12	5 to 11	------	------	------	------	------	------	15.8	84.2
	A13	11 to 17	------	------	------	------	------	------	13.3	86.7
	A14	17 to 28	------	------	------	------	------	------	12.5	87.5
	A15	28 to 38	------	------	------	------	------	------	17.4	82.6
	C	38 to 50	2.5	------	------	------	------	------	20.4	77.1

[1] Less than minimum reportable amount.

chemical data—Continued

Water content		Bulk density ⅓-bar	Extractable cations (meq. per 100 grams of soil)				Extractable acidity	Cation exchange capacity (NH_4OAc)	Organic carbon	Reaction (1:1)	Extractable iron as Fe	Available phosphorus
			Extractable bases									
⅓-bar	15-bar		Ca	Mg	Na	K						
Pct.	*Pct.*	*Gm./cc.*					*Meq./100 gm.*	*Meq./100 gm.*	*Pct.*	*pH*	*Pct.*	*Parts per million*
-------	5.2	----------	7.7	2.3	(2)	.7	3.0	10.4	.93	6.6	.4	---------
17.7	6.1	1.55	8.5	2.2	.1	.4	3.1	11.4	.60	6.1	.5	---------
26.1	15.2	1.43	19.5	5.2	.2	.7	4.2	23.6	.59	6.8	.8	---------
24.8	12.4	1.36	16.7	4.6	.2	.6	2.4	19.9	.44	7.2	.7	---------
25.4	10.5	1.32	14.8	4.5	.3	.5	--------	17.6	.33	7.6	.7	---------
26.7	13.1	1.30	16.8	5.6	.4	.6	--------	20.7	.41	7.7	.8	---------
29.0	7.1	1.32	10.1	3.6	.3	.4	--------	12.8	.20	7.9	.6	---------
31.0	7.9	1.31	12.0	3.8	.2	.5	--------	14.1	.20	8.0	.6	---------
32.5	18.9	1.28	23.5	7.5	.3	1.0	--------	28.9	.18	7.7	1.0	---------
-------	11.1	----------	15.1	4.6	.2	.7	--------	18.3	.28	7.8	.7	---------
32.1	18.2	1.28	22.0	6.4	.3	1.0	--------	26.3	.43	7.7	.8	---------
18.4	4.9	1.34	6.1	2.5	.1	.3	3.1	9.5	.59	6.1	.5	---------
13.4	5.2	1.53	5.3	1.9	.1	.2	3.9	9.0	.41	5.7	.4	---------
20.1	13.0	1.59	12.0	3.6	.4	.5	9.1	20.2	.45	5.2	.6	---------
22.5	12.8	1.48	11.4	3.4	.6	.5	8.8	19.6	.33	5.2	.6	---------
19.4	9.6	1.48	9.6	2.8	.6	.4	6.9	15.9	.25	5.4	.7	---------
18.3	7.4	1.45	7.5	1.9	.4	.3	4.9	12.0	.16	5.5	.6	---------
23.5	8.0	1.39	8.7	2.0	.4	.3	5.0	13.0	.13	5.4	.7	---------
17.7	5.0	1.40	6.7	1.6	.3	.3	3.3	9.5	.10	5.8	.6	---------
19.4	7.8	1.43	9.4	2.5	.4	.4	3.7	12.9	.09	6.1	.8	---------
-------	8.9	----------	11.0	2.9	.5	.5	3.6	14.9	.11	6.1	1.0	---------
-------	3.0	----------	4.6	1.1	.2	.2	1.9	6.4	.06	6.4	.6	---------
-------	7.0	1.49	7.7	2.1	.2	.3	4.8	11.3	.71	5.7	--------	50
-------	10.5	1.42	10.2	2.7	.2	.2	5.4	14.8	.34	6.0	--------	80
-------	8.3	1.39	9.4	3.3	.2	.2	6.1	13.1	.21	5.4	--------	145
-------	6.5	1.34	6.7	1.9	.3	.2	5.4	10.6	.14	5.2	--------	165
-------	7.0	1.32	6.9	2.1	.4	.2	5.5	11.6	.15	5.2	--------	190
-------	8.6	1.45	8.7	3.1	.3	.2	5.7	14.3	.14	5.4	--------	190
-------	6.4	1.40	7.5	2.5	.3	.2	3.9	11.2	.11	5.6	--------	180
-------	------	----------	------	------	------	------	--------	--------	--------	--------	--------	---------
-------	------	----------	------	------	------	------	--------	--------	--------	--------	--------	---------
23.6	11.4	1.51	8.2	1.8	.1	.7	3.7	10.5	.61	5.6	--------	385
28.1	8.5	1.34	8.7	2.0	.1	.3	2.7	11.2	.19	6.6	--------	375
25.9	4.6	1.34	5.4	1.1	.1	.2	1.6	6.8	.10	6.6	--------	315
23.4	4.5	1.35	5.4	1.0	.1	.2	1.5	6.5	.06	6.6	--------	285
28.5	5.6	1.33	6.4	1.2	.1	.2	1.5	7.7	.12	6.6	--------	275
-------	4.1	----------	6.1	1.1	.1	.2	1.5	7.3	.08	6.7	--------	295
-------	5.8	----------	7.9	1.8	.1	.2	1.6	9.4	.13	6.8	--------	275
-------	7.4	----------	9.4	2.8	.1	.2	1.2	10.7	.19	7.7	--------	295
37.2	29.5	1.06	31.3	10.7	.3	1.4	14.6	59.1	2.49	5.7	--------	155
43.3	30.8	1.05	31.6	12.4	.4	1.2	16.0	51.2	1.09	5.3	--------	120
47.2	32.0	1.05	33.6	13.8	.7	1.1	12.7	53.8	.84	5.8	--------	90
50.0	32.2	1.08	34.8	14.6	1.0	1.1	11.1	55.9	.65	6.4	--------	65
45.3	31.1	1.26	40.3	15.7	2.0	1.0	7.9	53.1	.55	7.5	--------	70
42.1	29.0	1.34	42.8	16.7	2.4	1.0	6.6	49.1	.43	7.5	--------	50

[2] Trace.

TABLE 10.—*Mineralogy of 2–0.2 micron and less than 0.2 micron clay*

[Dashes indicate less than minimum reportable amounts]

Soil type and sample number	Horizon	Depth	Vermiculite		Montmorillonite		Mica-illite		Mica	Ka
			2–0.2	<0.2	2–0.2	<0.2	2–0.2	<0.2	<0.2	2–0.
		In.	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct*
Alligator silt loam (S64La–54–6).	A1	0 to 6	>40	------	------	>40	10 to 40	<10	------	----
	C1	13 to 20	>40	------	------	>40	10 to 40	<10	------	----
	C4	42 to 54	>40	------	------	>40	10 to 40	--------	------	----
Bruin silt loam (S64La–54–2).	Ap	0 to 7	>40	------	------	>40	10 to 40	--------	<10	<
	B2	10 to 18	>40	------	------	>40	10 to 40	--------	<10	----
	C2	34 to 46	>40	------	------	>40	<10	--------	<10	<
Commerce (S63La–54–1).	Ap1	0 to 6	>40	------	------	>40	>40	--------	------	<
	Alb1	32 to 36	>40	------	------	>40	10 to 40	<10	------	<
	Alb2	54 to 60	>40	------	------	>40	10 to 40	<10	------	<
Dundee (S63La–54–3).	Ap1	0 to 5	>40	------	------	>40	<10	--------	------	----
	B21t	8 to 15	>40	------	<10	>40	<10	--------	------	----
	C1	30 to 41	>40	------	------	>40	10 to 40	--------	------	<
Goldman (S64La–54–4).	Ap	0 to 5	10 to 40	------	------	>40	10 to 40	<10	------	----
	B22t	9 to 18	>40	>40	------	--------	10 to 40	<10	------	----
	C2	44 to 60	>40	------	------	>40	10 to 40	<10	------	----
Robinsonville very fine sandy loam (S64La–54–1).	Ap	0 to 8	>40	------	------	>40	10 to 40	<10	------	<
	C2	21 to 29	>40	------	------	10 to 40	10 to 40	--------	------	<
	C6	50 to 55	>40	------	------	10 to 40	10 to 40	--------	------	----
Sharkey clay (S64La–54–7).	Ap	0 to 5	>40	------	------	>40	10 to 40	<10	------	----
	A13	11 to 17	------	------	>40	>40	<10	10 to 40	------	<
	C	38 to 50	>40	------	------	>40	10 to 40	--------	------	----

General Nature of the Parish

Tensas Parish, once a part of Concordia and Madison Parishes, was established by Acts of the Louisiana State Legislature in 1843 and 1861. It was named for a tribe of Indians who lived within its boundaries when it was first settled by the French. St. Joseph is the parish seat.

The population was slightly more than 19,000 in 1900 but decreased to less than 12,000 by 1960. It is largely rural. Each of the three towns in the parish—St. Joseph, Newellton, and Waterproof—has a population of less than 2,000.

Farming

Tensas Parish has always been a farming area. The early economy was based on the plantation system, and cotton was the main crop.

The total acreage of cotton decreased steadily after 1945, but the yield per acre increased because of the development of better varieties, improved drainage, the use of only the more productive soils for the crop, and the improvement in methods of management.

The acreage of soybeans increased from 2,487 in 1945 to 21,322 in 1964. Soybeans grow well on most of the soils in the parish. Higher yielding varieties have been developed recently, and there are good markets and no acreage controls.

Acreages of corn, wheat, and oats decreased after 1945.

The acreage in pasture increased after 1945. Most farmers raise livestock. The number of beef cattle was estimated to be nearly 27,000 head in 1964.

Several thousand acres of woodland are cleared each year, mainly for growing soybeans or for pasture.

The number of farms decreased after 1945, but the average size of farms increased from 109 acres in 1945 to 442 acres in 1964.

Natural Resources

Timber, water, oil, and gas are the principal natural resources of Tensas Parish. Large areas of woodland have good stands of southern hardwoods, and much of the woodland has been developed to support industries for sawlogs, pulpwood, and specialty products.

The Mississippi River, the perennial streams, and the drilled wells provide an adequate supply of water for livestock and for industrial and domestic use. Coarse sand and gravel underlie the alluvial plain of the Mississippi River and yield ample supplies of water to wells throughout the parish. The base of these water-bearing beds is at a depth of 100 to 175 feet. The towns of St. Joseph, Newellton, and Waterproof obtain their water supply from wells 125 to 140 feet deep. The well water in Tensas Parish requires softening and iron removal before it is suitable for public supply.

Mineral development has been continuous since the discovery of oil fields at Holly Ridge and Lake St. John in the early 1940's. Today, there are about 20 fields in the parish producing oil and gas. The oil field at Lake St. John, in the southernmost part of the parish, is the site of a recycling plant. The largest of the more recently discovered fields are Killens Ferry, Locust Ridge, Rodney Island, and Buckhorn. There are natural gas extraction plants at both Locust Ridge and Killens Ferry.

Climate

Tensas Parish has the humid, warm, temperate climate characteristic of the southeastern part of the United States. In summer the prevailing southerly winds provide a moist tropical climate. Occasionally, the pressure distribution causes hot dry weather, which if prolonged, develops into droughts of varying severity. In winter the parish is subjected alternately to moist tropical air and dry polar air, and sometimes there are sudden and extreme changes in temperature. Cold spells are usually of short duration.

Freezing temperatures occur on an average of 34 days per year, and temperatures of 90° F. or higher on an average of 87 days. From May through October, temperatures are 90° or higher about 11 percent of the time and 80° or higher about 37 percent of the time. From November through April, temperatures are 70° or higher about 15 percent of the time and below 50° about 32 percent of the time. Temperatures of 20° or lower occur at least once each winter in 8 out of 10 years. There is a 50-percent chance of a freeze after March 18 and before November 2, and a 20-percent chance of a freeze after April 1 and before October 22. The average frost-free period is 229 days per year. The average temperature is 80.6° in summer and 51.3° in winter.

The average annual rainfall is 53.92 inches. About 16 inches falls in spring and is generally well distributed. Although spring is rarely too dry for good growth of crops, at times it is too wet. Occasionally, precipitation is inadequate in summer, and occasionally, it is excessive and seriously affects the growth of crops. Fall is normally the driest of the three major growing seasons. In some years, however, crops are damaged by heavy rainfall. Prolonged wet weather in fall not only delays harvest but at times delays crop maturity. As a result, crops are occasionally damaged by freezing temperatures. Wet weather in fall also affects some crops directly. For example, it lowers the quality of cotton and causes boll rot.

Winters are characterized by cloudy, cool weather. There are short periods of freezing temperatures, but winters are mild enough so that small grain, tall fescue, ryegrass, and some legumes continue to grow. Infrequently, winter storms accompanied by strong winds, hail, and ice damage trees and utility wires.

The relative humidity is 60 percent or more 71 percent of the time and below 40 percent only 8 percent of the time. When the temperature is 90° or higher, relative humidity seldom exceeds 79 percent.

Table 11 shows, by months, the average, the absolute maximum and the absolute minimum temperatures at St. Joseph, La. The table also gives the average amount of rainfall for each month, the amounts in the driest and wettest years of record, and the average amount of snowfall.

TABLE 11.—*Temperature and precipitation at St. Joseph, La.*

[Elevation 78 feet]

Month	Temperature [1]			Precipitation [2]			
	Average	Absolute maximum	Absolute minimum	Average	Driest year 1924	Wettest year 1940	Average snowfall
	° F.	*° F.*	*° F.*	*In.*	*In.*	*In.*	*In.*
December	51.1	88	10	5.80	3.36	9.57	0.5
January	50.2	84	−8	5.94	6.68	2.89	2.4
February	52.6	87	2	5.53	3.48	7.48	.2
Winter	51.3	88	−8	17.27	13.52	19.94	3.1
March	58.3	92	19	6.25	5.28	4.53	(3)
April	65.1	94	29	5.35	3.49	21.80	0
May	72.6	101	32	4.67	4.35	1.22	0
Spring	65.3	101	19	16.27	13.12	27.55	(3)
June	79.3	103	47	3.64	1.56	4.18	0
July	81.4	103	53	5.05	.12	16.04	0
August	81.2	104	52	3.21	.31	2.35	0
Summer	80.6	106	47	11.90	1.99	22.57	0
September	75.9	106	37	2.40	1.62	2.76	0
October	66.2	96	23	2.00	.04	1.39	0
November	55.9	90	16	4.08	.13	9.23	(3)
Fall	66.0	106	16	8.48	1.79	13.38	(3)
Year	65.8	106	−8	53.92	30.42	83.44	3.1

[1] Average temperature based on data for the period 1931–52; highest and lowest temperatures based on data for the period 1908–58.

[2] Average precipitation based on data for the period 1931–52; driest and wettest years based on data for the period 1891–1958.

[3] Trace.

Physiography and Geology [7]

Tensas Parish is an alluvial area that is largely between the Mississippi River and the eastern escarpment of Macon Ridge. Its landforms include flooded back swamps and the natural levees built up by aggrading streams.

Much of the parish is on ridges and in swales. The relief is level to undulating. The parish slopes gently to the southwest from an elevation of 85 feet above sea level in the northeastern part to an elevation of about 50 feet in the southwestern corner. The low alluvial divides and meandering ridges are generally less than 5 feet above the level of the plain.

Drainage is away from the Mississippi River levee, in a southwesterly direction, and away from the Tensas River, in an easterly direction. Consequently, water accumulates in the center of the parish but is carried back to the Tensas River through Clark Bayou, Choctaw Bayou, Van Buren Bayou, and Tensas Bayou.

Geologically, the soils of Tensas Parish are young. It is probable that the alluvium from which the soils originated was deposited after the last main retreat of the Wisconsin Glaciers by the Mississippi River (*4*). This alluvium is approximately 50 to 125 feet thick.

McFarlan (*8*) has shown that similar materials in southern Louisiana were generally deposited within the last 5,000 years. The history of this period is one of almost constant change. It is probable that many years ago the Mississippi River occupied a position near the western edge of the parish. Most likely, the river acted then much as it does now, creating low, wide natural levees with gentle back slopes. It is also likely that flooding was prevalent at that time. Later, the Mississippi River probably assumed its present position. This movement accounts for the oxbow lakes, the swamps, and the sediments from floods that covered or decreased the size of old lakes. The result of these changes is a heterogeneous mixture of silt and sand over clay, and of clay over silt and sand.

The length of time the soils have been weathering is reflected in the history of the Mississippi River. Along the present channel of the river, the soils are alkaline and show very little profile development, but along the older abandoned channels, the soils are acid and show profile development. In places, subsequent beds of recent alluvium have covered older surfaces.

There has been no deposition by flooding since the completion of the levee along the Mississippi River, except where levees have broken.

[7] C. R. AKERS, geologist, Soil Conservation Service, helped prepare this section.

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Glossary

Alluvium. Soil material, such as sand, silt, or clay, that has been deposited on land by streams.

Available water capacity. The capacity of a soil to hold water in a form available to plants. Amount of moisture held in soil between field capacity, or about one-third atmosphere of tension, and the wilting coefficient, or about 15 atmospheres of tension.

Clay. As a soil separate, mineral soil particles that are less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt. (See also Texture, soil.)

Concretions. Grains, pellets, or nodules that consist of concentrations of compounds or of soil grains cemented together. They are of various sizes, shapes, and colors. The composition of some concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are examples of material commonly found in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent; will not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material, and tends to stretch somewhat and pull apart, rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard and brittle; little affected by moistening.

Erosion. The wearing away of the land surface by wind, running water, and other geological agents.

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes.

O horizon. The layer of organic matter on the surface of a mineral soil. This layer consists of decaying plant residues.

A horizon. The mineral horizon at the surface or just below an O horizon. This horizon is the one in which living organisms are most active, and it is therefore marked by the accumulation of humus. The horizon may have lost one or more of soluble salts, clay, and sesquioxides (iron and aluminum oxides).

B horizon. The mineral horizon below an A horizon. The B horizon is in part a layer of change from the overlying A to the underlying C horizon. The B horizon also has (1) distinctive characteristics caused by accumulation of clay, sesquioxides, humus, or some combination of these; or (2) prismatic or blocky structure; or (3) redder or stronger colors; or (4) some combination of these characteristics. The combined A and B horizons are usually called the solum, or true soil. If a soil lacks a B horizon, the A horizon alone is the solum.

C horizon. The weathered rock material immediately beneath the solum. This layer, commonly called the soil parent material, is presumed to be like that from which the overlying horizons were formed in most soils. If the underlying material is known to be different from that in the solum, a Roman numeral precedes the letter, C.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are—

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Graded row.—Water is applied by running small streams in furrows between crop rows. The rows have a designated fall per 100 feet.

Contour levee.—Water is applied to a nearly level or gently sloping field that has been divided into strips bounded by low earthen levees on the contour.

Mottling, soil. Irregularly marked with spots of different colors that vary in number and size. Mottling in soils usually indicates poor aeration and lack of drainage. Descriptive terms are as follows: Abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are these: *fine,* less than 5 millimeters (about 0.2 inch) in diameter along the greatest dimension; *medium,* ranging from 5 millimeters to 15 millimeters (about 0.2 to 0.6 inch) in diameter along the greatest dimension; and *coarse,* more than 15 millimeters (about 0.6 inch) in diameter along the greatest dimension.

Natural drainage. The conditions that existed during the development of the soil, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven different classes of natural drainage are recognized.

Excessively drained soils are commonly very porous and rapidly permeable and have low water-holding capacity.

Somewhat excessively drained soils are very permeable and are free from mottling throughout their profile.

Well-drained soils are nearly free from mottling and are commonly of intermediate texture.

Moderately well drained soils commonly have a slowly permeable

layer in or immediately beneath the solum. They have uniform color in the A and upper B horizons and have mottling in the lower B and the C horizons.

Somewhat poorly drained soils are wet for significant periods; podzolic soils commonly are mottled below a depth of 6 to 16 inches in the lower A horizon and in the B and C horizons.

Poorly drained soils are wet for long periods and are light gray and generally mottled from the surface downward, although mottling may be absent or nearly so in some soils.

Very poorly drained soils are wet nearly all the time. They have a dark-gray or black surface layer and are gray or light gray, with or without mottling, in the deeper parts of the profile.

Permeability. The ability of the soil to transmit air or water. Terms used to describe permeability are as follows: *very slow, slow, moderately slow, moderate, moderately rapid, rapid,* and *very rapid.*

pH value. A numerical means for designating acidity and alkalinity in soils. A pH value of 7.0 indicates precise neutrality; a higher value alkalinity; and a lower value, acidity. (See also Reaction, soil.)

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values or words as follows:

	pH		*pH*
Extremely acid	Below 4.5	Mildly alkaline	7.4 to 7.8
Very strongly acid	4.5 to 5.0	Moderately alkaline	7.9 to 8.4
Strongly acid	5.1 to 5.5	Strongly alkaline	8.5 to 9.0
Medium acid	5.6 to 6.0	Very strongly alkaline	9.1 and higher
Slightly acid	6.1 to 6.5		
Neutral	6.6 to 7.3		

Sand. As a soil separate, individual rock or mineral fragments 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz, but sand may be any mineral composition. As a textural class, soil that is 85 percent or more sand and not more than 10 percent clay. (See also Texture, soil.)

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a textural class, soil that is 80 percent or more silt and less than 12 percent clay. (See also Texture, soil.)

Structure, soil. The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular. Structureless* soils are (1) *single grain* (each grain by itself, as in dune sand) or (2) *massive* (the particles adhering together without any regular cleavage, as in many claypans and hardpans).

Subbase. A selected soil material used under rigid or flexible pavement roads. It makes up the lower portion of the base course and is placed directly on the subgrade.

Subgrade (engineering). The substratum, consisting of in-place material or fill material, that is prepared for highway construction; does not include stabilized base course or actual paving material.

Subsoil. Technically, the B horizon; roughly, the part of the profile below plow depth.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, about 5 to 8 inches in thickness. The plowed layer.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by adding the words "coarse," "fine," or "very fine" to the name of the textural class.

Tilth, soil. The condition of the soil, especially of the soil structure, in relation to the growth of plants. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable, granular structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Topsoil (engineering). Presumably a fertile soil or soil material, ordinarily rich in organic matter, used to topdress roadbanks, lawns, and gardens.

Undulating. Of a soil, having complex slopes; the ridge-swale topography of Tensas Parish is an example. *Gently undulating* soils have a slope range of 0 to 3 percent. *Undulating* soils have a slope range of 0 to 8 percent.

U. S. GOVERNMENT PRINTING OFFICE : 1968 O - 278-979

[For a full description of a mapping unit, read both the description of the

[See table 1, p. 5, for approximate acreage and proportionate extent of the soils the engineering properties of the soils, turn to the section beginning on p. 29. descriptions of wildlife groups]

Map symbol	Mapping unit	Described on page	Capability unit Symbol	Capability unit Page
AcA	Alligator clay, 0 to 1 percent slopes	6	IIIw-2	25
AgB	Alligator clay, gently undulating	6	IIIw-5	26
AgD	Alligator clay, undulating	7	IIIw-5	26
BaA	Bruin silt loam, 0 to 1 percent slopes	7	I-1	23
BaB	Bruin silt loam, 1 to 3 percent slopes	8	IIe-1	23
BmB	Bruin-Mhoon complex, gently undulating	8	-----	--
	Bruin	--	IIw-3	24
	Mhoon	--	IIw-3	24
BrC	Bruin-Robinsonville-Crevasse complex, undulating	8	-----	--
	Bruin	--	IIe-2	23
	Robinsonville	--	IIe-2	23
	Crevasse	--	IIe-2	23
ChC	Clayey alluvial land and Sharkey clay, overflow, 0 to 5 percent slopes	8	Vw-2	27
CmA	Commerce silt loam, 0 to 1 percent slopes	9	I-1	23
CmB	Commerce silt loam, 1 to 3 percent slopes	10	IIe-1	23
CnA	Commerce silty clay loam, 0 to 1 percent slopes	10	IIw-1	24
CoB	Commerce silty clay loam, gently undulating	10	IIw-3	24
CrD	Crevasse fine sand, 0 to 8 percent slopes	10	IVs-1	26
CsD	Crevasse fine sand, overflow, 0 to 8 percent slopes	11	Vw-2	27
Dd	Dundee silt loam	11	I-2	23
De	Dundee silty clay loam	12	IIw-2	24
DgD	Dundee-Goldman-Tensas complex, undulating	12	-----	--
	Dundee	--	IIIw-6	26
	Goldman	--	IIIw-6	26
	Tensas	--	IIIw-6	26
DtB	Dundee-Tensas-Goldman complex, gently undulating	12	-----	--
	Dundee	--	IIIw-6	26
	Tensas	--	IIIw-6	26
	Goldman	--	IIIw-6	26
LrC	Loamy alluvial land and Robinsonville soils, overflow, 0 to 5 percent slopes	13	Vw-2	27
Mh	Mhoon silt loam	14	IIw-1	24

TO MAPPING UNITS

mapping unit and the description of the soils series to which the mapping unit belongs.

and table 2, p. 27, for estimated yields per acre of the principal crops. For facts about
See table 3, p. 30, for descriptions of woodland groups and table 7, p. 57, for

Map symbol	Mapping unit	Described on page	Capability unit	
			Symbol	Page
Mo	Mhoon silty clay loam	14	IIw-1	24
NcA	Newellton clay, 0 to 1 percent slopes	15	IIw-5	25
NcC	Newellton clay, 1 to 5 percent slopes	15	IIw-4	24
NeB	Newellton silty clay loam, 1 to 3 percent slopes	15	IIw-4	24
NtC	Newellton-Commerce-Tunica complex, undulating	16	-----	--
	Newellton	--	IIIw-4	26
	Commerce	--	IIIw-4	26
	Tunica	--	IIIw-4	26
NuB	Newellton-Mhoon silty clay loams, gently undulating	15	IIw-3	24
NyC	Newellton-Sharkey clays, undulating	16	IIIw-4	26
Ow	Oil-waste land	16	VIIIs-1	27
RbC	Robinsonville very fine sandy loam, 1 to 5 percent slopes	17	IIe-1	23
Sc	Sharkey clay	17	IIIw-1	25
Sf	Sharkey clay, overflow	18	Vw-1	27
So	Sharkey silt loam	18	IIIw-3	25
Ss	Sharkey silty clay loam	18	IIIw-3	25
Ta	Tensas silty clay	19	IIIw-2	25
Tb	Tensas silty clay loam	19	IIIw-2	25
TcB	Tensas-Alligator clays, gently undulating	19	-----	--
	Tensas	--	IIIw-5	26
	Alligator	--	IIIw-5	26
TcD	Tensas-Alligator clays, undulating	20	-----	--
	Tensas	--	IIIw-5	26
	Alligator	--	IIIw-5	26
TdB	Tensas-Alligator-Dundee complex, gently undulating	20	-----	--
	Tensas	--	IIIw-5	26
	Alligator	--	IIIw-5	26
	Dundee	--	IIIw-5	26
TdD	Tensas-Alligator-Dundee complex, undulating	20	-----	--
	Tensas	--	IIIw-5	26
	Alligator	--	IIIw-5	26
	Dundee	--	IIIw-5	26
Tu	Tunica clay	21	IIIw-1	25

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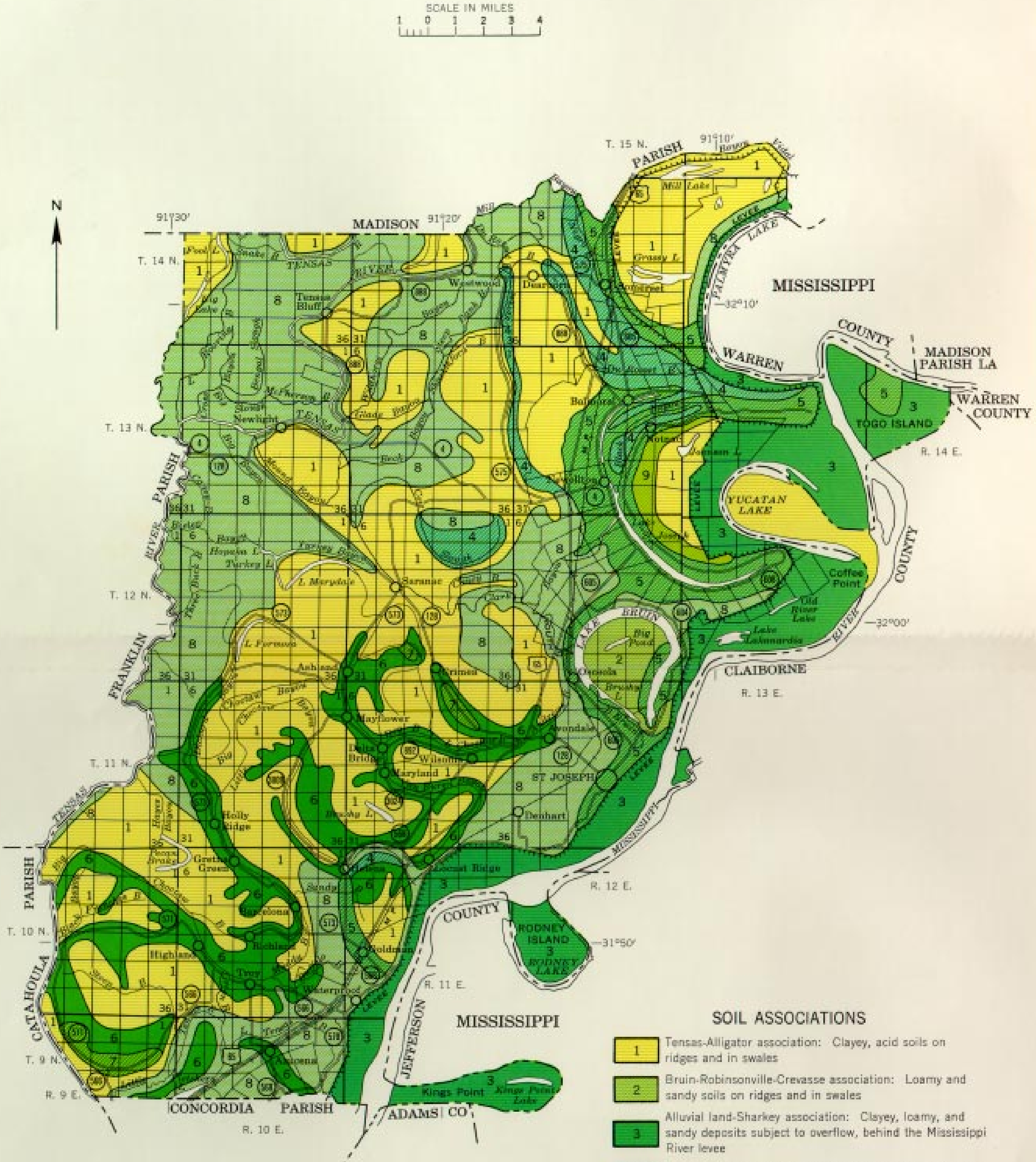
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
LOUISIANA AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP

TENSAS PARISH, LOUISIANA



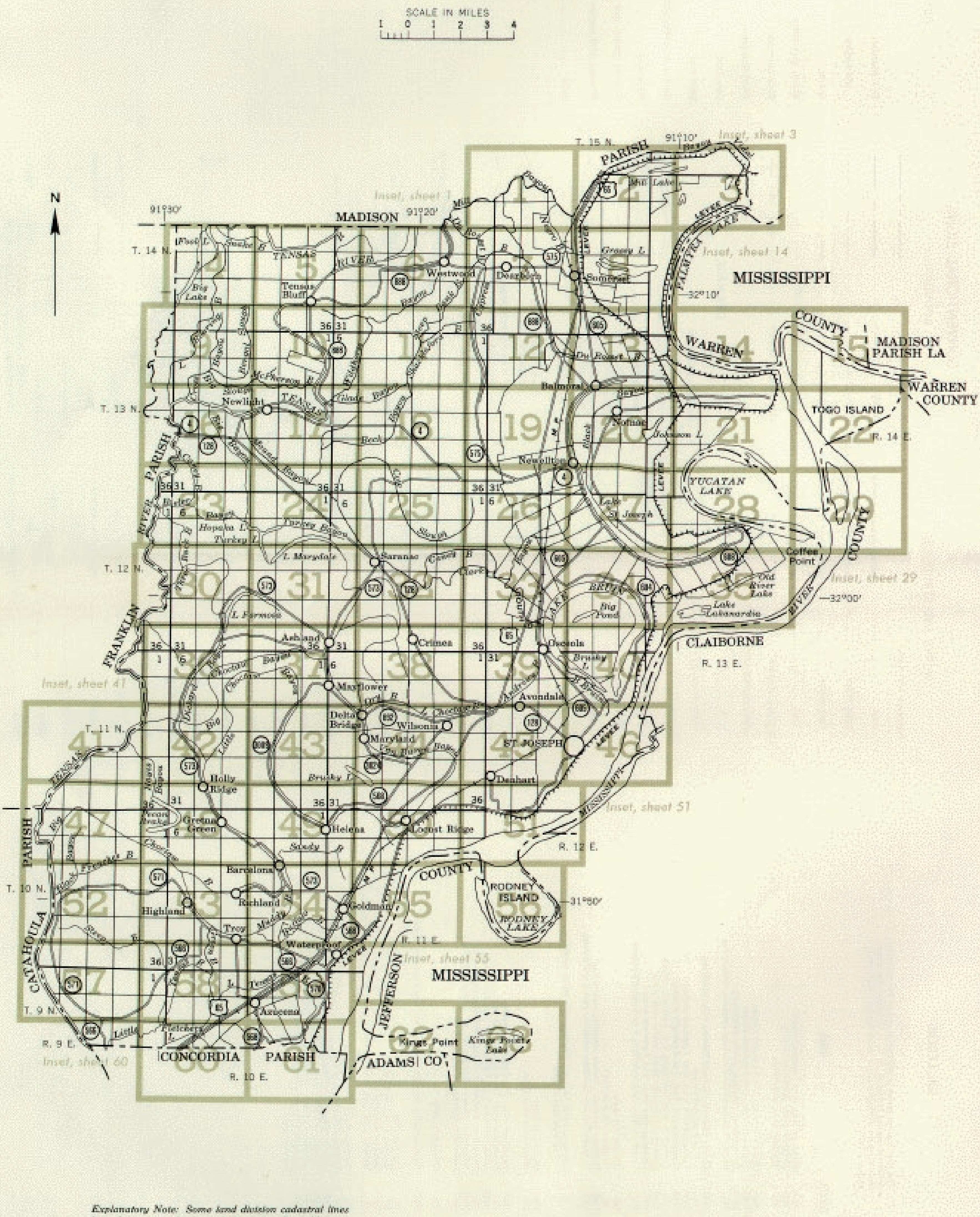
SOIL ASSOCIATIONS

1	Tensas-Alligator association: Clayey, acid soils on ridges and in swales
2	Bruin-Robinsonville-Crevasse association: Loamy and sandy soils on ridges and in swales
3	Alluvial land-Sharkey association: Clayey, loamy, and sandy deposits subject to overflow, behind the Mississippi River levee
4	Newellton-Sharkey association: Clayey, alkaline soils on ridges and in swales
5	Commerce-Bruin-Robinsonville association: Loamy soils on natural levees
6	Tensas-Dundee-Alligator association: Clayey and loamy soils along natural levees
7	Dundee-Tensas-Goldman association: Loamy and clayey, acid soils on ridges and in swales
8	Sharkey-Alligator-Tunica association: Clayey soils in broad, level areas
9	Newellton-Commerce-Tunica association: Clayey and loamy, alkaline soils on ridges and in swales

November 1967

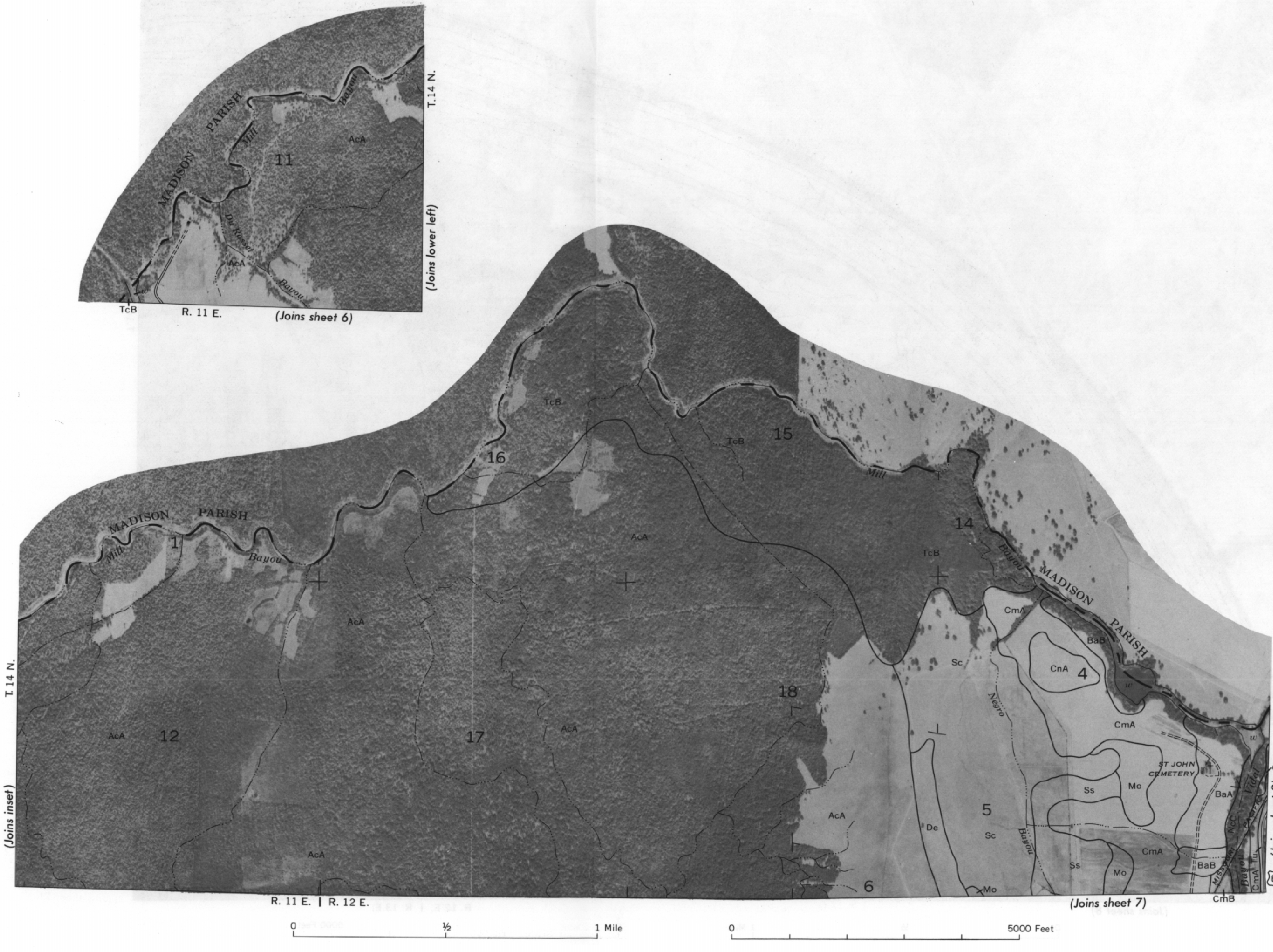
Explanatory Note: Some land division cadastral lines have been omitted where their portrayal would cause congested appearances on this small scale map.

INDEX TO MAP SHEETS
TENSAS PARISH, LOUISIANA



Explanatory Note: Some land division cadastral lines have been omitted where their portrayal would cause congested appearances on this small scale map.

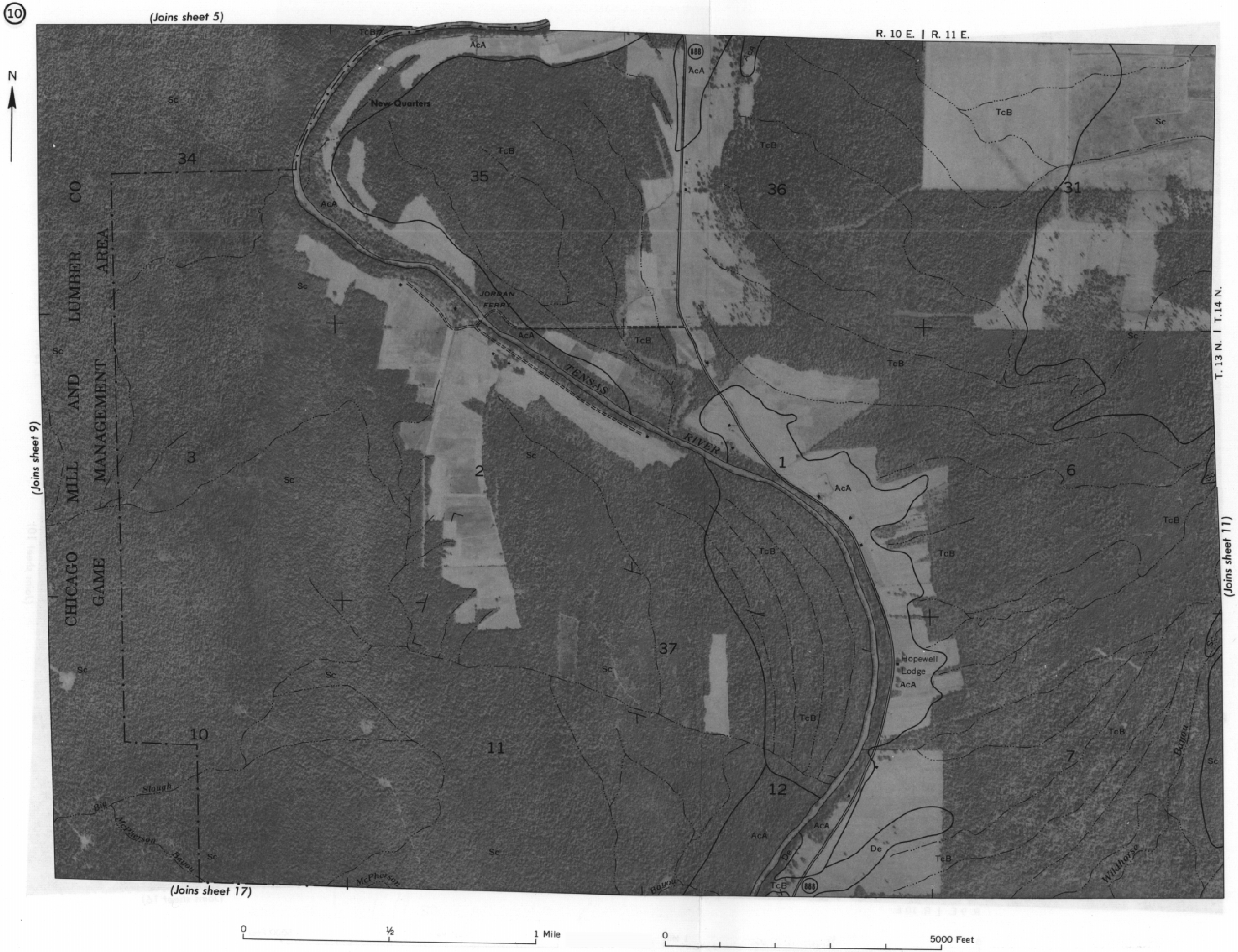
1



This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.

Land division corners are approximately positioned on this map.

TENSAS PARISH, LOUISIANA NO. 1


10
(Joins sheet 5)
N
R. 10 E. | R. 11 E.
T. 14 N. | T. 13 N.
(Joins sheet 9)
(Joins sheet 11)
(Joins sheet 17)
CHICAGO MILL AND LUMBER CO
GAME MANAGEMENT AREA
New Quarters
JORDAN FERRY
TENSAS RIVER
Hopewell Lodge
888
34
35
36
31
3
2
1
6
37
10
11
12
7
Sc
TcB
AcA
De
Big Slough
McPherson Bayou
Bayou
Wildhorse Bayou
0
½
1 Mile
5000 Feet

11

TENSAS PARISH, LOUISIANA NO. 11

This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.

Land division corners are approximately positioned on this map.

TENSAS PARISH, LOUISIANA NO.12

13

0 ½ 1 Mile

0 5000 Feet

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Land division corners are approximately positioned on this map.

TENSAS PARISH, LOUISIANA NO. 13

14


N
(Joins sheet 3)
R. 13 E.
T. 14 N.
(Joins sheet 8)
BORROW PIT
PALMYRA LAKE
MISSISSIPPI
WARREN COUNTY
ChC
Sc
28
29
30
31
32
33
34
35
36
T. 13 N.
(Joins sheet 15)
(Joins sheet 13)
MISSISSIPPI RIVER
TOGO ISLAND
CsD
23
LrC
PALMYRA LAKE
WARREN COUNTY MISSISSIPPI
CmB
CmA
NyC
BaA
CnA
Ss
Sc
NcA
Mo
Tu
NtC
BmB
BaB
CmA
Point Pleasant
BORROW PIT
Water
RIVER
STICKS
B. P.
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
68
(Joins sheet 21)
R. 13 E.
BaB
0
½
1 Mile
0
5000 Feet

TENSAS PARISH, LOUISIANA NO. 15

This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.

Land division corners are approximately positioned on this map.

0 ½ 1 Mile

0 5000 Feet

TENSAS PARISH, LOUISIANA NO.16

TENSAS PARISH, LOUISIANA NO. 17

This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.

Land division corners are approximately positioned on this map.

18

(Joins sheet 11)

R. 11 E.

(Joins sheet 17)

(Joins sheet 19)

(Joins sheet 25)

0 ½ 1 Mile

0 5000 Feet

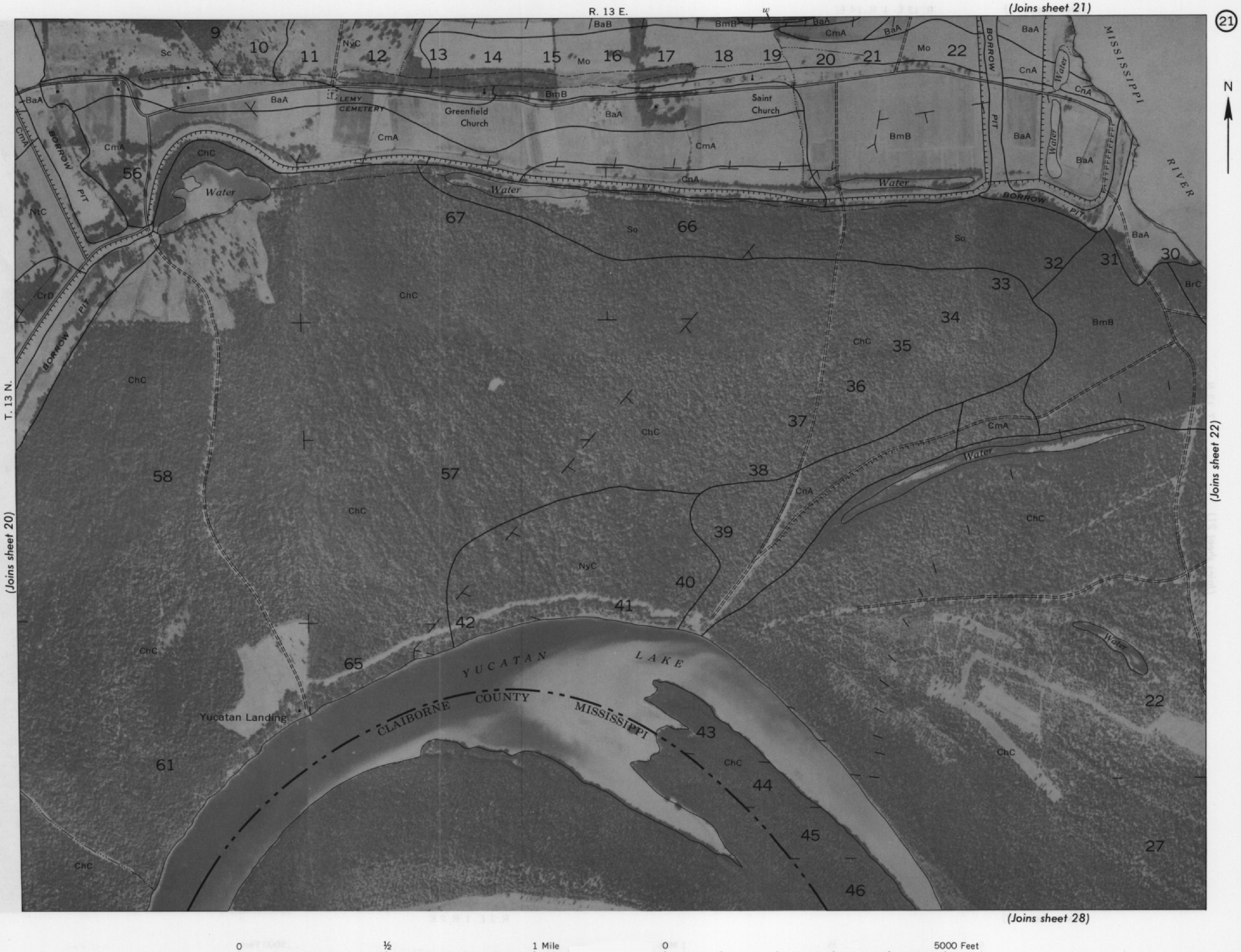
TENSAS PARISH, LOUISIANA NO. 19

This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.

Land division corners are approximately positioned on this map.


2
N
MADISON PARISH
BAYOU VIDAL
BORROW PIT
Mill Lake
Mud Lake
Mound Bayou
Duck Lake
Bayou
Water
T. 14 N. | T. 15 N.
(Joins sheet 3)
(Joins sheet 1)
(Joins sheet 8)
R. 12 E. | R. 13 E.
0 ½ 1 Mile
0 5000 Feet
CmB
CmA
NcC
Tu
Mo
Sc
AcA
TcD
NyC
CnA
TcB
AgD
5
6
7
11
12
13
19
20
21
27
28
29
30
31
32
33
43
44
45
46
47

TENSAS PARISH, LOUISIANA NO.20



This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.
Land division corners are approximately positioned on this map.

TENSAS PARISH, LOUISIANA NO. 21


22
(Joins sheet 15)
R. 13 E. | R. 14 E.
N
T. 13 N.
(Joins sheet 21)
(Joins sheet 29)
R. 1 E. | R. 2 E.
MISSISSIPPI
RIVER
CLAIBORNE COUNTY MISSISSIPPI
Bar Lake
Blue Hole
Round Lake
Long Lake
Brushy Lake
Viney Lake
Lake Karnac
CsD
LrC
ChC
CoB
CnA
BaB
CmA
BmB
BrC
CrD
0
½
1 Mile
5000 Feet

TENSAS PARISH, LOUISIANA NO.23


24
(Joins sheet 17)
R. 10 E. | R. 11 E.
N
T. 12 N. | T. 13 N.
(Joins sheet 23)
(Joins sheet 25)
(Joins sheet 31)
AcA
TcB
Sc
NcC
Ta
34
35
36
31
1
2
3
6
7
10
11
12
Mound
Bayou
Cow
Slough
Long Lake
Hopaka
Turkey
Lake
Marydale
Marydale Plantation
128
0
½
1 Mile
0
5000 Feet

0 ½ 1 Mile

0 5000 Feet

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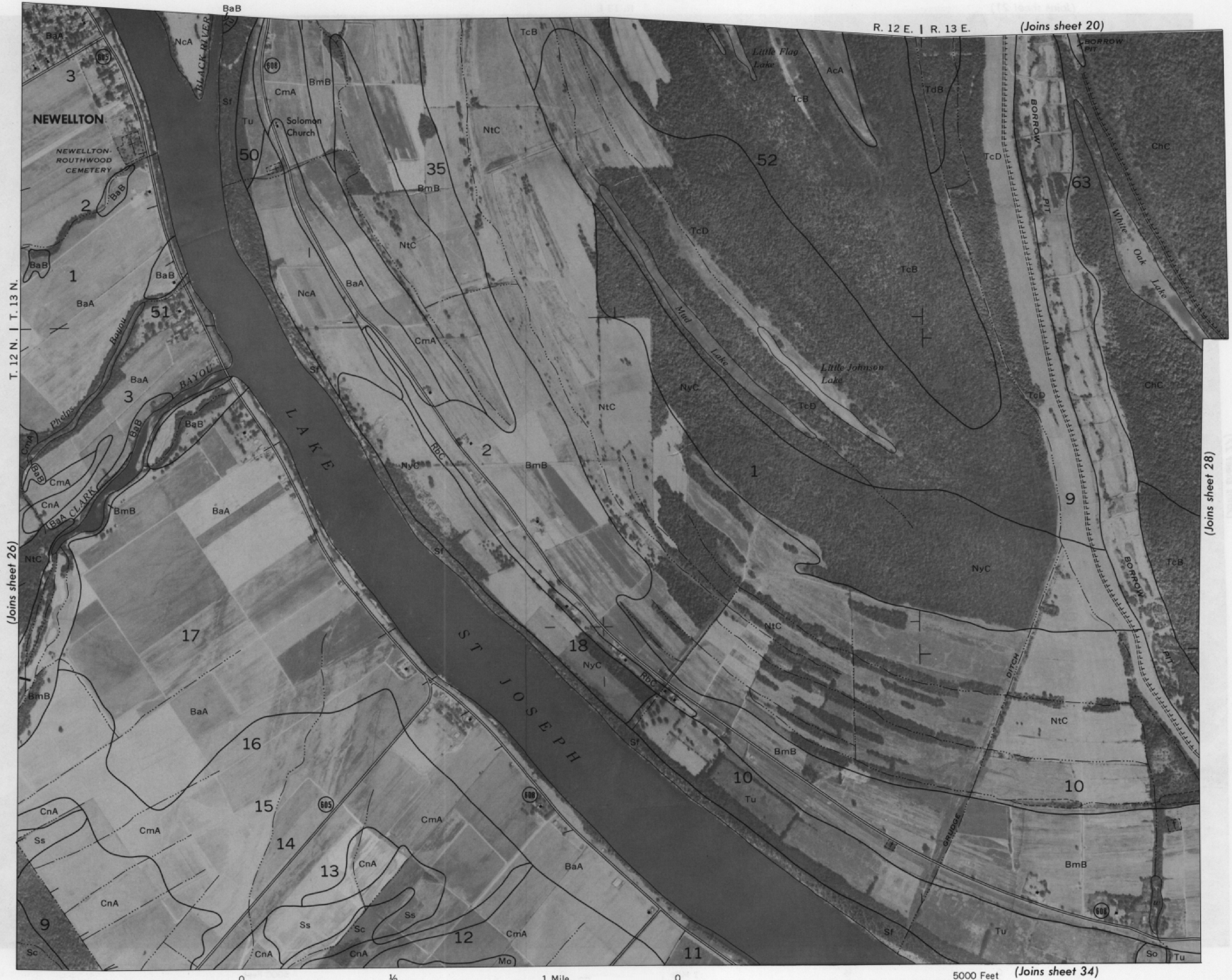
Land division corners are approximately positioned on this map.

TENSAS PARISH, LOUISIANA NO. 25


26
(Joins sheet 19)
R. 11 E. | R. 12 E.
N
NEWELLTON
MC DONALD AIRPORT
T. 12 N. | T. 13 N.
(Joins sheet 25)
(Joins sheet 27)
(Joins sheet 33)
Cow Slough
Hurricane Lake
Clark Bayou
MISSOURI PACIFIC
69
36
31
70
54
45
46
1
2
3
4
5
6
7
8
9
12
17
47
48
49
NyC
TcB
AcA
De
Dd
Sc
CmA
Ss
Mo
Tu
NcA
Tb
BaA
NtC
BmB
CnA
0 ½ 1 Mile
0 5000 Feet



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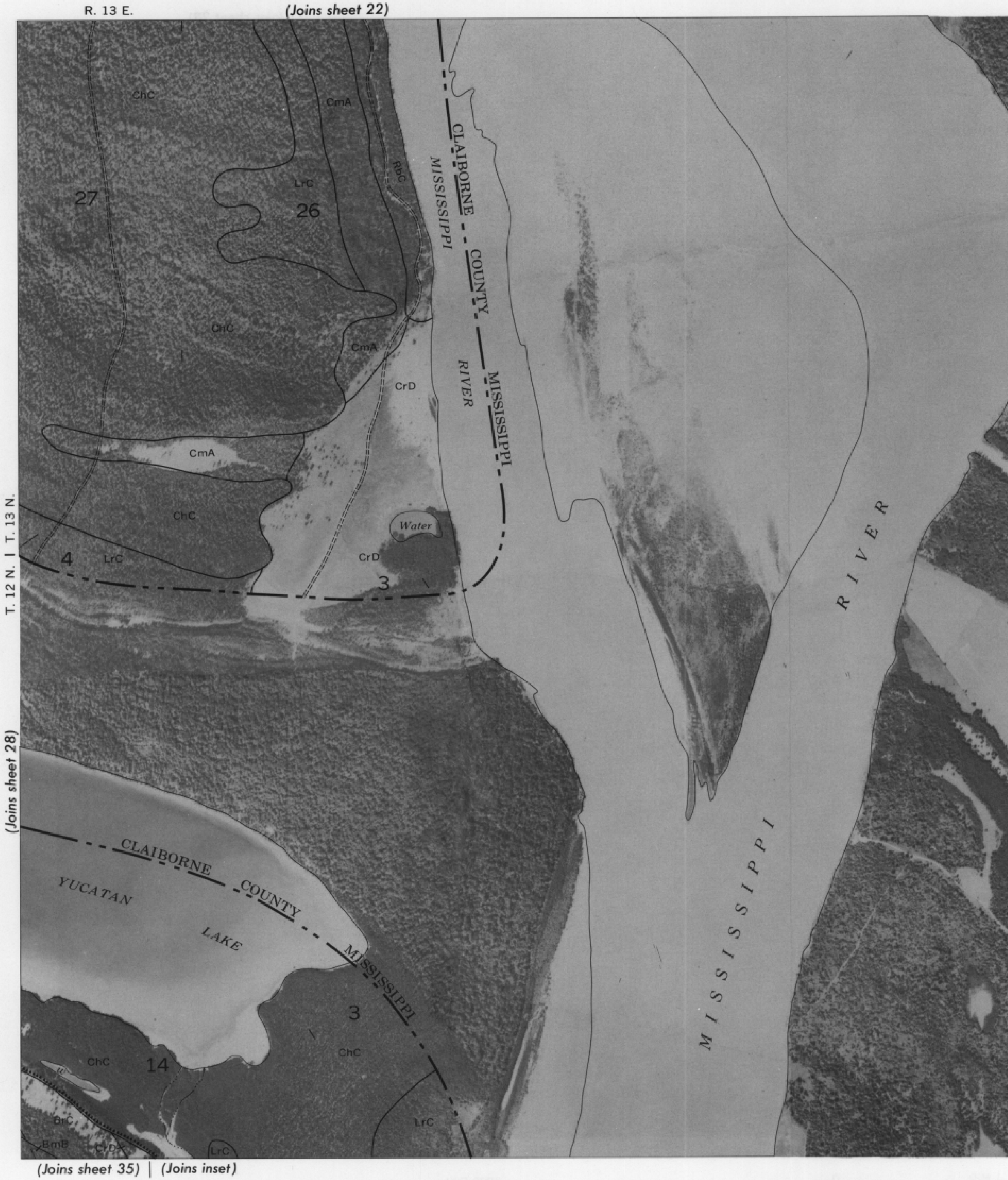
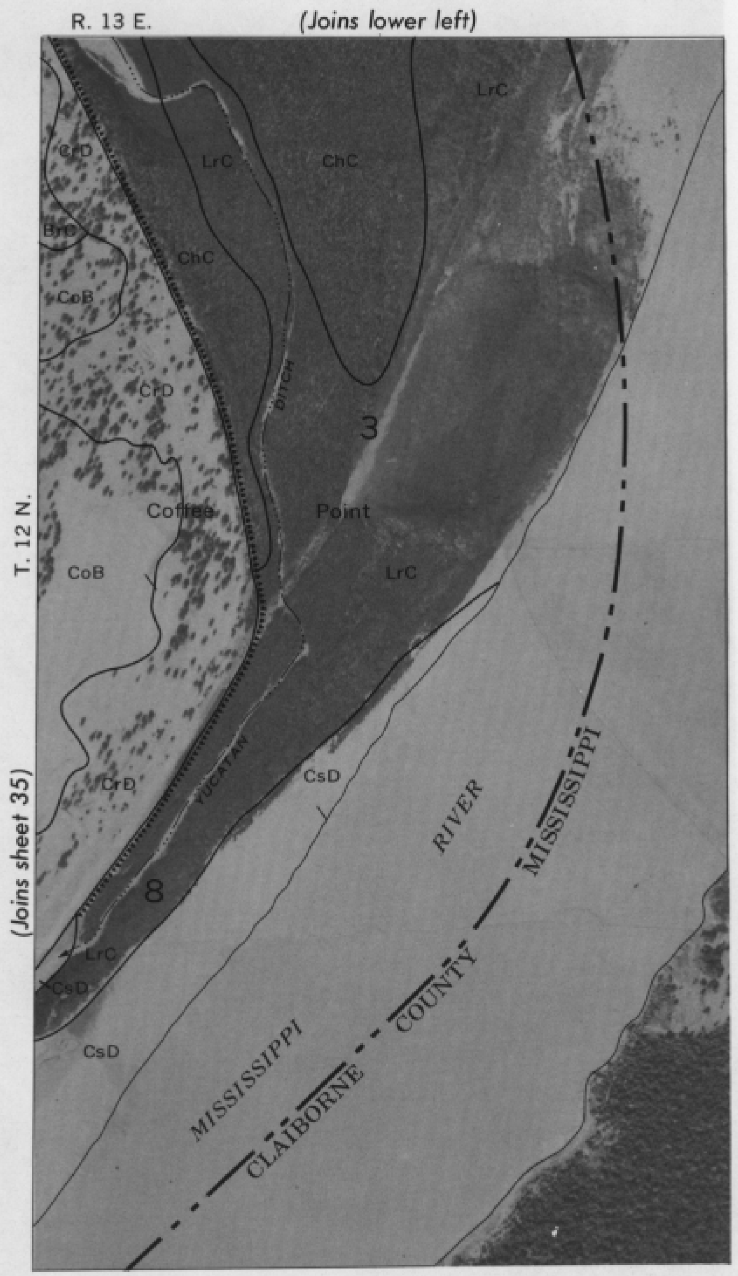
Land division corners are approximately positioned on this map.

TENSAS PARISH, LOUISIANA NO. 27


28
(Joins sheet 21)
R. 13 E.
N
Yucatan Lake
48
49
50
ChC
62
CLAIBORNE COUNTY MISSISSIPPI
LrC
T. 12 N. | T. 13 N.
(Joins sheet 27)
(Joins sheet 29)
8
YUCATAN LAKE
CLAIBORNE COUNTY MISSISSIPPI
7
TcB
CoB
6
BORROW PIT
41
13
4
CrD
CmA
12
BmB
NeB
11
NtC
St
CmB
16
BrC
14
15
NyC
ST JOSEPH LAKE
17
BaA
Mo
Ss
Sc
608
(Joins sheet 35)
0 ½ 1 Mile
0 5000 Feet





N

0 ½ 1 Mile

0 5000 Feet

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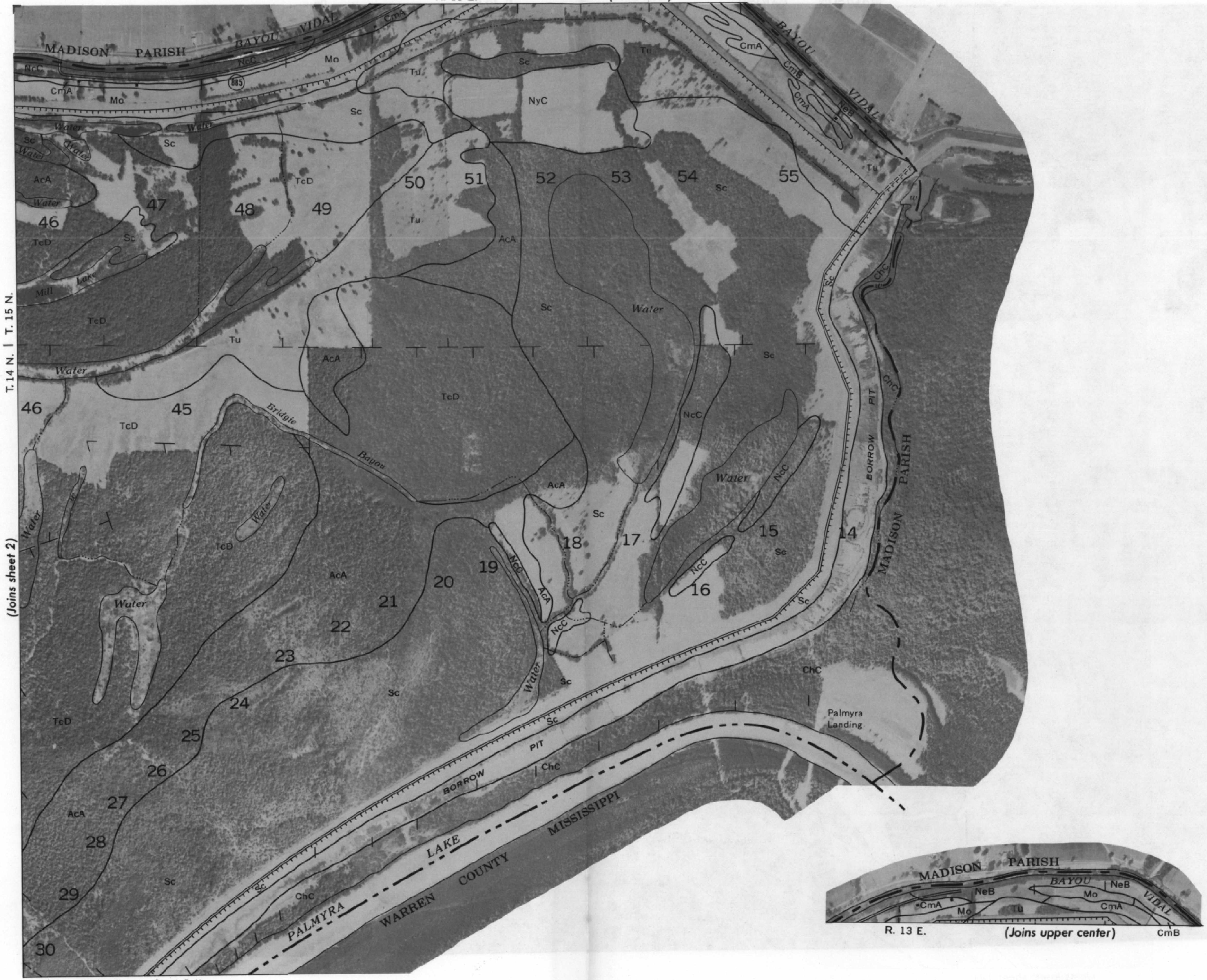
Land division corners are approximately positioned on this map.

TENSAS PARISH, LOUISIANA NO. 29

③

R. 13 E. (Joins inset)



T. 14 N. | T. 15 N.

(Joins sheet 2)

(Joins inset, sheet 14)

R. 13 E. (Joins upper center)

0 ½ 1 Mile

0 5000 Feet

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Land division corners are approximately positioned on this map.

TENSAS PARISH, LOUISIANA NO. 3

TENSAS PARISH, LOUISIANA NO. 30

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Land division corners are approximately positioned on this map.
TENSAS PARISH, LOUISIANA NO. 31


32
(Joins sheet 25)
R. 11 E.
N
Morning Star Church
Saranac
Thistle Ridge Cemetery
T. 12 N.
(Joins sheet 31)
(Joins sheet 33)
(Joins sheet 38)
16
15
14
17
20
21
22
23
29
28
27
26
0 ½ 1 Mile
0 5000 Feet

This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.
Land division corners are approximately positioned on this map.

TENSAS PARISH, LOUISIANA NO. 33

34

(Joins sheet 27)

R. 12 E. | R. 13 E.

N

(Joins sheet 33)

(Joins sheet 35)

(Joins sheet 40)

0 ½ 1 Mile

0 5000 Feet

TENSAS PARISH, LOUISIANA NO. 34

This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.
Land division corners are approximately positioned on this map.

TENSAS PARISH, LOUISIANA NO. 35

36

(Joins sheet 30)

R. 9 E. | R. 10 E.

N

(Joins inset, sheet 41)

T. 11 N. | T. 12 N.

(Joins sheet 37)

(Joins sheet 42)

0 ½ 1 Mile

0 5000 Feet

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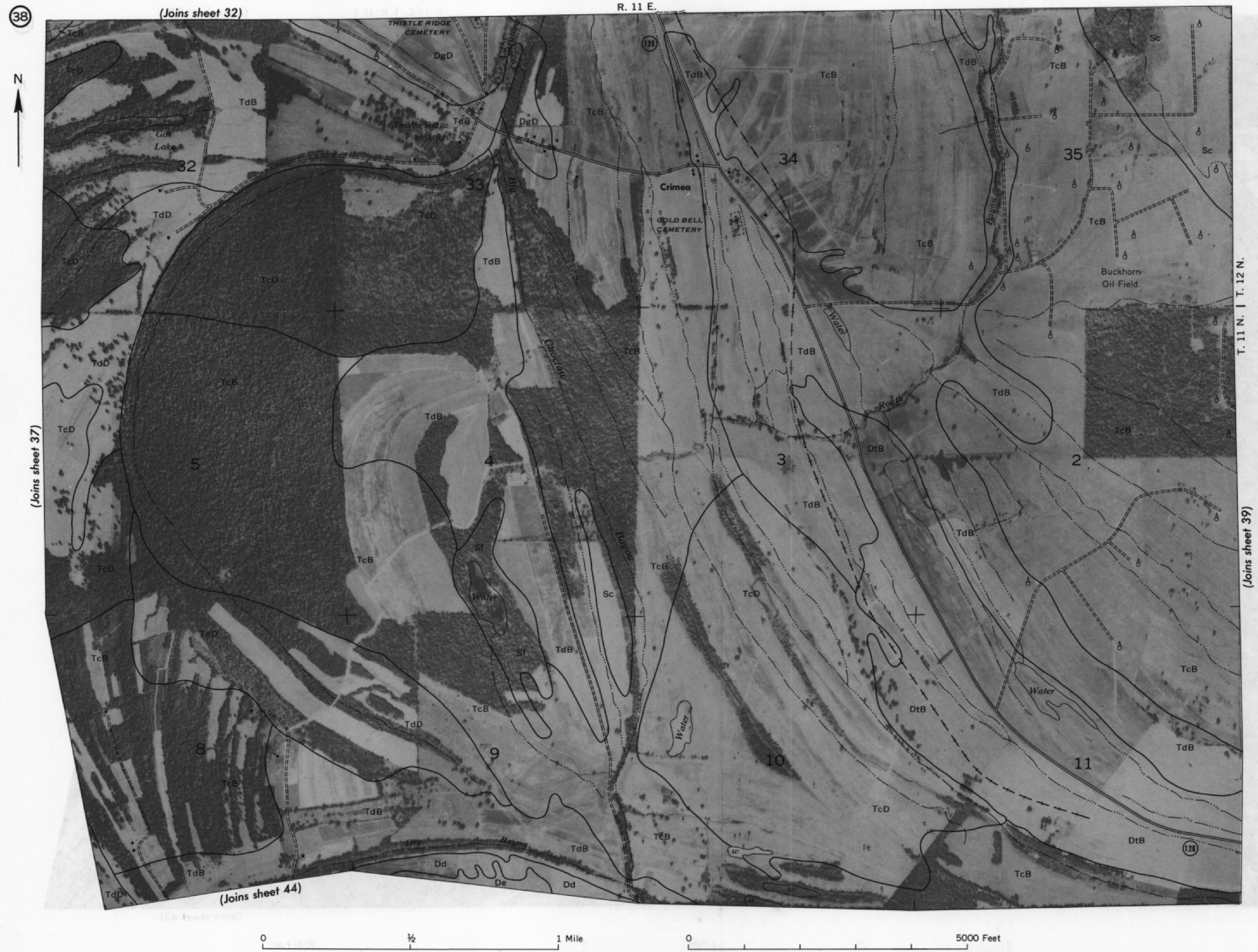
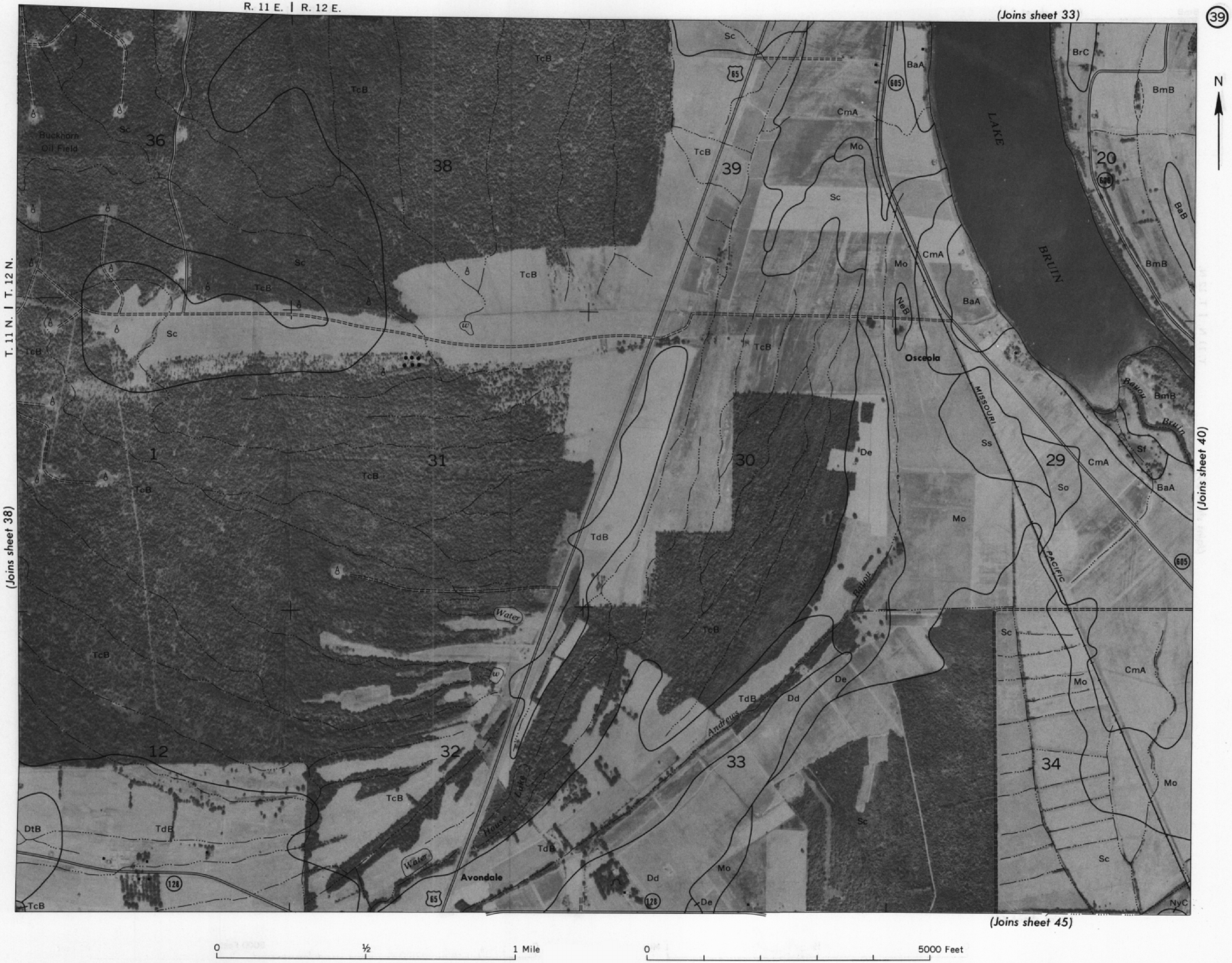
Land division corners are approximately positioned on this map.

TENSAS PARISH, LOUISIANA NO. 37



TENSAS PARISH, LOUISIANA NO. 38



This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.
Land division corners are approximately positioned on this map.

TENSAS PARISH, LOUISIANA NO. 39


4
N
MADISON PARISH
R. 10 E.
FRANKLIN PARISH
De
FOOL RIVER
Sc
TcB
Fool Lake
Snake Bayou
18
17
16
CHICAGO MILL AND LUMBER CO
GAME MANAGEMENT AREA
19
20
21
T.14 N.
Killens Ferry Gas Field
BIG LAKE
GAS
30
29
28
(Joins sheet 5)
(Joins sheet 9)
0 ½ 1 Mile
0 5000 Feet


40
(Joins sheet 34)
R. 12 E. | R. 13 E.
N
T. 11 N. | T. 12 N.
(Joins sheet 39)
(Joins sheet 46)
LAKE BRUIN
BRUSHY LAKE
MISSISSIPPI RIVER
Bondurant Chute
CLAIBORNE COUNTY MISSISSIPPI
LAKE BRUIN STATE PARK
NORTHEAST LOUISIANA AGRICULTURAL EXPERIMENT STATION
Lakewood Church
Airstrip
BORROW PIT
Water
Bayou
Bruin
0 ½ 1 Mile
0 5000 Feet

Land division corners are approximately positioned on this map.

TENSAS PARISH, LOUISIANA NO. 41


42
(Joins sheet 36)
R. 9 E. | R. 10 E.
GAME MANAGEMENT AREA BDY
N
FRANKLIN PARISH
TENSAS RIVER
Cooters Point
Holly Ridge Church
Big Choctaw Bayou
Little Choctaw Bayou
Monclova Church
Holly Ridge Gas And Oil Field
Broad Lake
Turkey Lake
Wilson Lake
T. 11 N.
(Joins sheet 41)
(Joins sheet 43)
(Joins sheet 48)
13
16
17
18
19
20
21
24
25
28
29
30
AcA
AgB
Dd
De
Mo
NeB
Ow
Sc
Sf
Ta
Tb
TcB
TcD
TdB
TdD
Tu
573
0
½
1 Mile
0
5000 Feet

TENSAS PARISH, LOUISIANA NO. 43

This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.

Land division corners are approximately positioned on this map.


44
(Joins sheet 38)
R. 11 E.
T. 11 N.
(Joins sheet 43)
(Joins sheet 45)
(Joins sheet 50)
Delta Bridge
Maryland
Maryland Church
Aubrey
Wilsonia
Oneonta Church
ONEONTA CEMETERY
Choctaw Bayou
Van Buren Bayou
Little Choctaw Bayou
Jackson Lake
Gin Lake
Lockner Lake
Duck Lake
Fox Lake
Brushy Lake
Water
14
15
16
17
20
21
22
23
26
27
28
29
0 ½ 1 Mile
0 5000 Feet

0 ½ 1 Mile

0 5000 Feet

This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.
Land division corners are approximately positioned on this map.


46
(Joins sheet 40)
R. 12 E.
T. 11 N.
(Joins sheet 45)
N
MISSOURI
PACIFIC
ST JOSEPH CEMETERY
St John Church
ST JOSEPH
(Parish Seat)
BORROW PIT
Bayou Brun
Bondurant Chute
RIVER
MISSISSIPPI
TOWHEAD
BONDURANT
PIERRE
BAYOU
Bar
Panola
CLAIBORNE COUNTY
Water
NyC
Sc
CmA
Mo
BaA
BaB
Tu
NtC
BmB
NcA
ChC
CnA
LrC
CsD
CsD 16
(Joins sheet 51) | (Joins inset, sheet 51)
0
½
1 Mile
0
5000 Feet
TENSAS PARISH, LOUISIANA NO.46

This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.
Land division corners are approximately positioned on this map.

TENSAS PARISH, LOUISIANA NO.47

(48)

(Joins sheet 42)

R. 9 E. | R. 10 E.

N

(Joins sheet 47)

T. 10 N. | T. 11 N.

(Joins sheet 49)

(Joins sheet 53)

0 ½ 1 Mile

0 5000 Feet

This map is one of a set compiled in 1960 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.
Land division corners are approximately positioned on this map.

TENSAS PARISH, LOUISIANA NO. 49

0 ½ 1 Mile

0 5000 Feet

TENSAS PARISH, LOUISIANA NO. 5

This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.

Land division corners are approximately positioned on this map.


R. 11 E.
50
(Joins sheet 44)
(Joins sheet 49)
(Joins sheet 51)
(Joins sheet 55)
T. 10 N. | T. 11 N.
N
Brushy Lake
St Lena Church
Gibson Plantation
Fox Lake Water
Cindy Lake
CROSS KEYS CEMETERY
Cross Keys
Locust Ridge
Locust Ridge Oil Field
Van Buren
Chambles
ST PETER LAKE
CANAL
BORROW PIT
MISSOURI PACIFIC
MISSISSIPPI RIVER
JEFFERSON COUNTY
MISSISSIPPI
Water
19
20
21
22
25
26
27
28
32
33
34
35
0 ½ 1 Mile
0 5000 Feet

This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.
Land division corners are approximately positioned on this map.

TENSAS PARISH, LOUISIANA NO. 51

TENSAS PARISH, LOUISIANA NO. 52

This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.
Land division corners are approximately positioned on this map.

TENSAS PARISH, LOUISIANA NO. 53

TENSAS PARISH, LOUISIANA NO. 54

This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.
Land division corners are approximately positioned on this map.

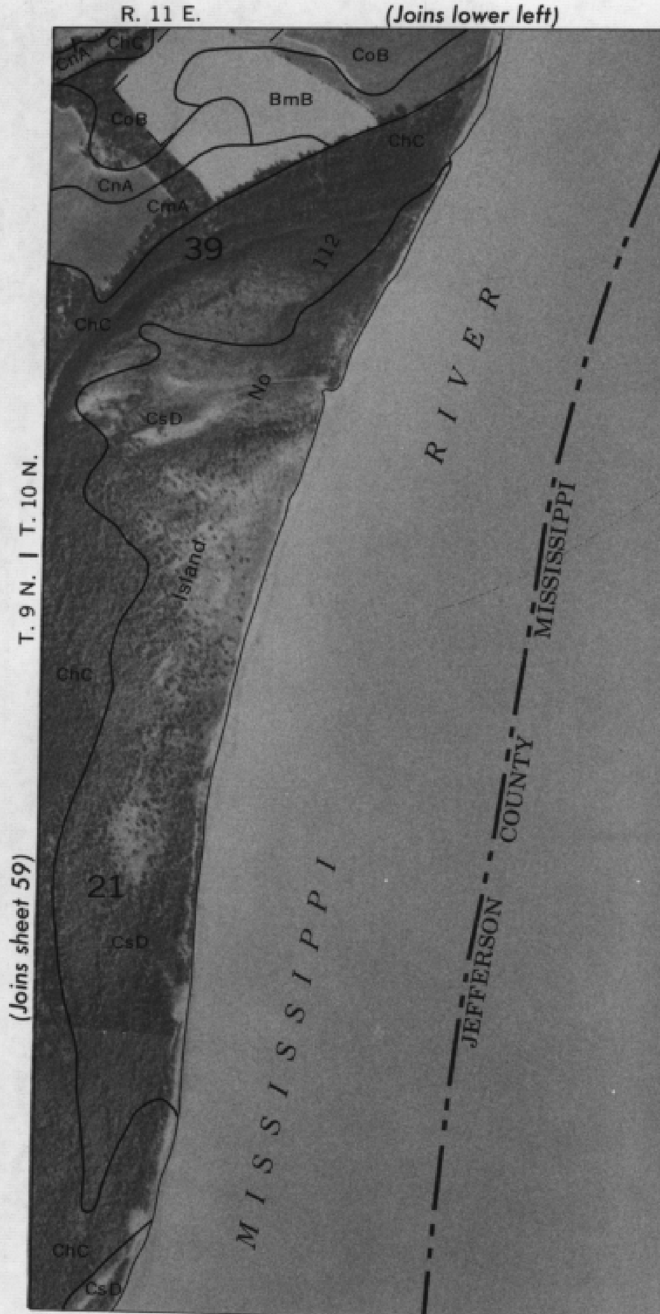
TENSAS PARISH, LOUISIANA NO. 55

(Joins sheet 50)

R. 11 E.

(Joins inset)

R. 11 E. (Joins lower left)



(Joins sheet 62)

N

0 ½ 1 Mile

0 5000 Feet

TENSAS PARISH, LOUISIANA NO. 56

TENSAS PARISH, LOUISIANA NO. 57

This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.

Land division corners are approximately positioned on this map.

0 ½ 1 Mile

0 5000 Feet

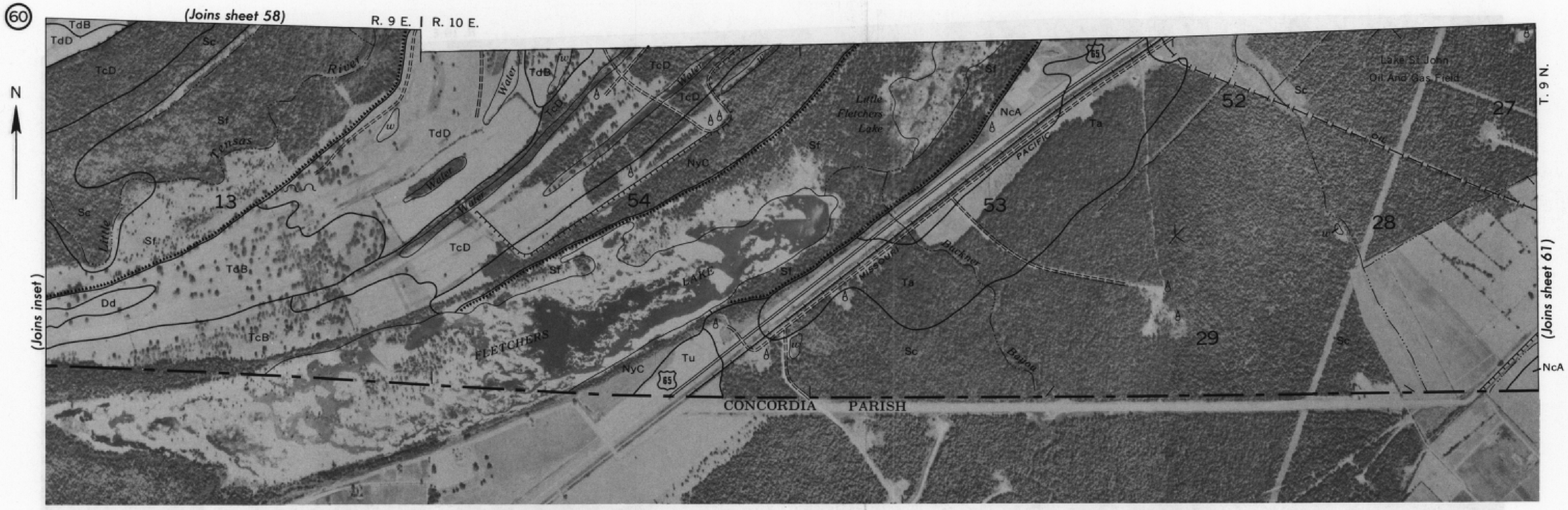
58
(Joins sheet 53)
R. 9 E. | R. 10 E.
N
(Joins sheet 57)
(Joins sheet 59)
(Joins sheet 60)
T. 9 N. | T. 10 N.
Lake St John
Oil And Gas Field
Tensas River
Little Fletchers Lake
POWERS CEMETERY
MISSOURI PACIFIC
0 ½ 1 Mile
0 5000 Feet

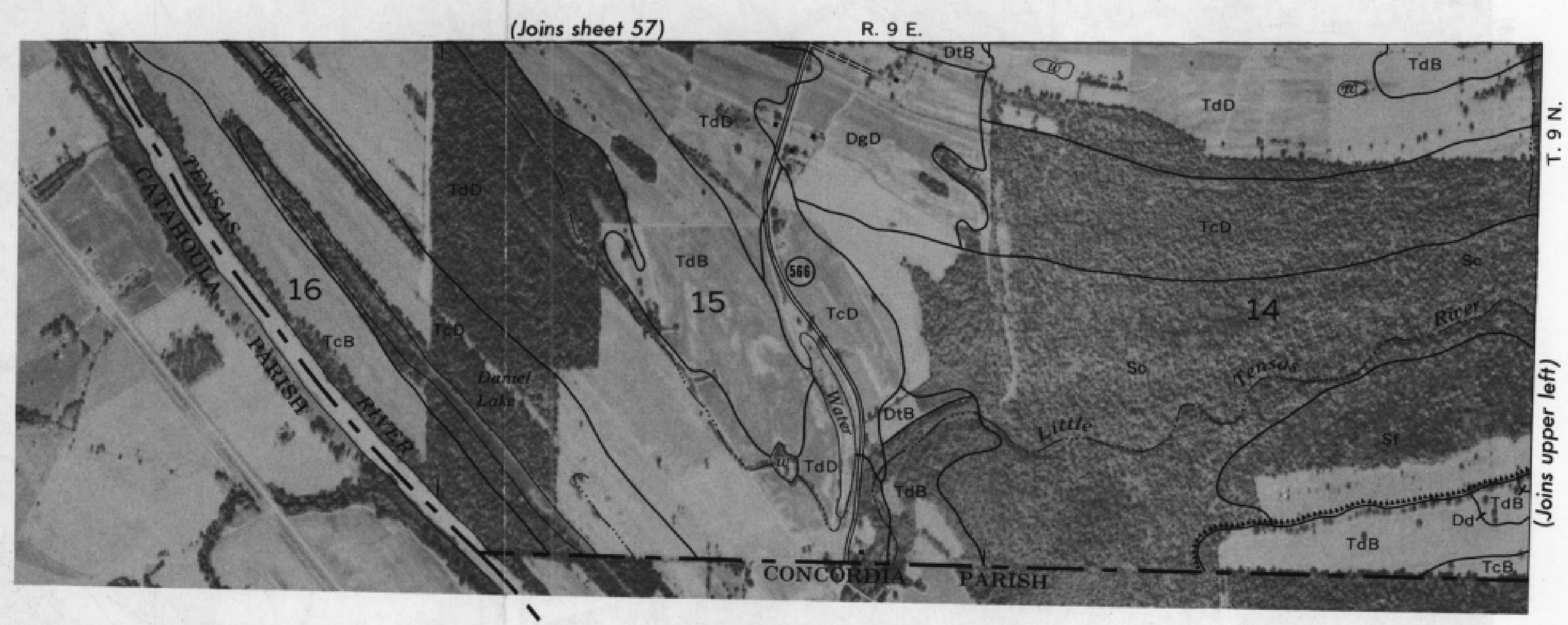
TENSAS PARISH, LOUISIANA NO. 59

This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.

Land division corners are approximately positioned on this map.


6
N
MADISON PARISH
R. 11 E.
(Joins inset, sheet 1)
(Joins sheet 5)
(Joins sheet 7)
(Joins sheet 11)
T. 14 N.
17
16
15
14
20
21
22
23
29
28
27
26
Sc
TcB
AcA
NcC
De
TENSAS
RIVER
LAKE
BEND
RIDGE
Westwood
Flowers Landing Church
Bayou
Bank
Steep
888
1079
0
½
1 Mile
0
5000 Feet





0 ½ 1 Mile

0 5000 Feet

TENSAS PARISH, LOUISIANA NO. 60

This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.
Land division corners are approximately positioned on this map.

0 ½ 1 Mile

0 5000 Feet

62

(Joins inset, sheet 55)

R. 11 E.

0 ½ 1 Mile

0 5000 Feet

TENSAS PARISH, LOUISIANA NO. 63

This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.

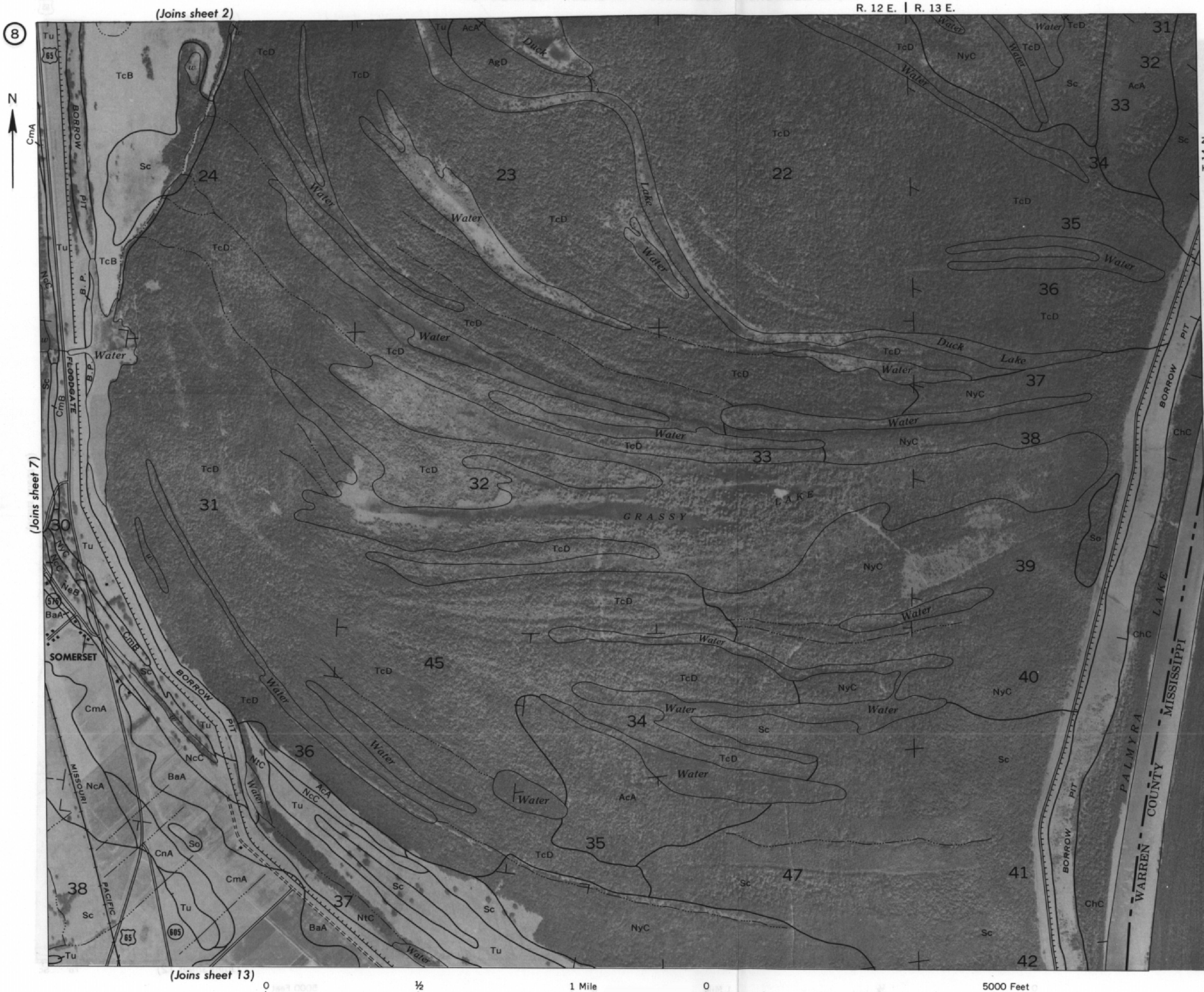
Land division corners are approximately positioned on this map.

0 ½ 1 Mile

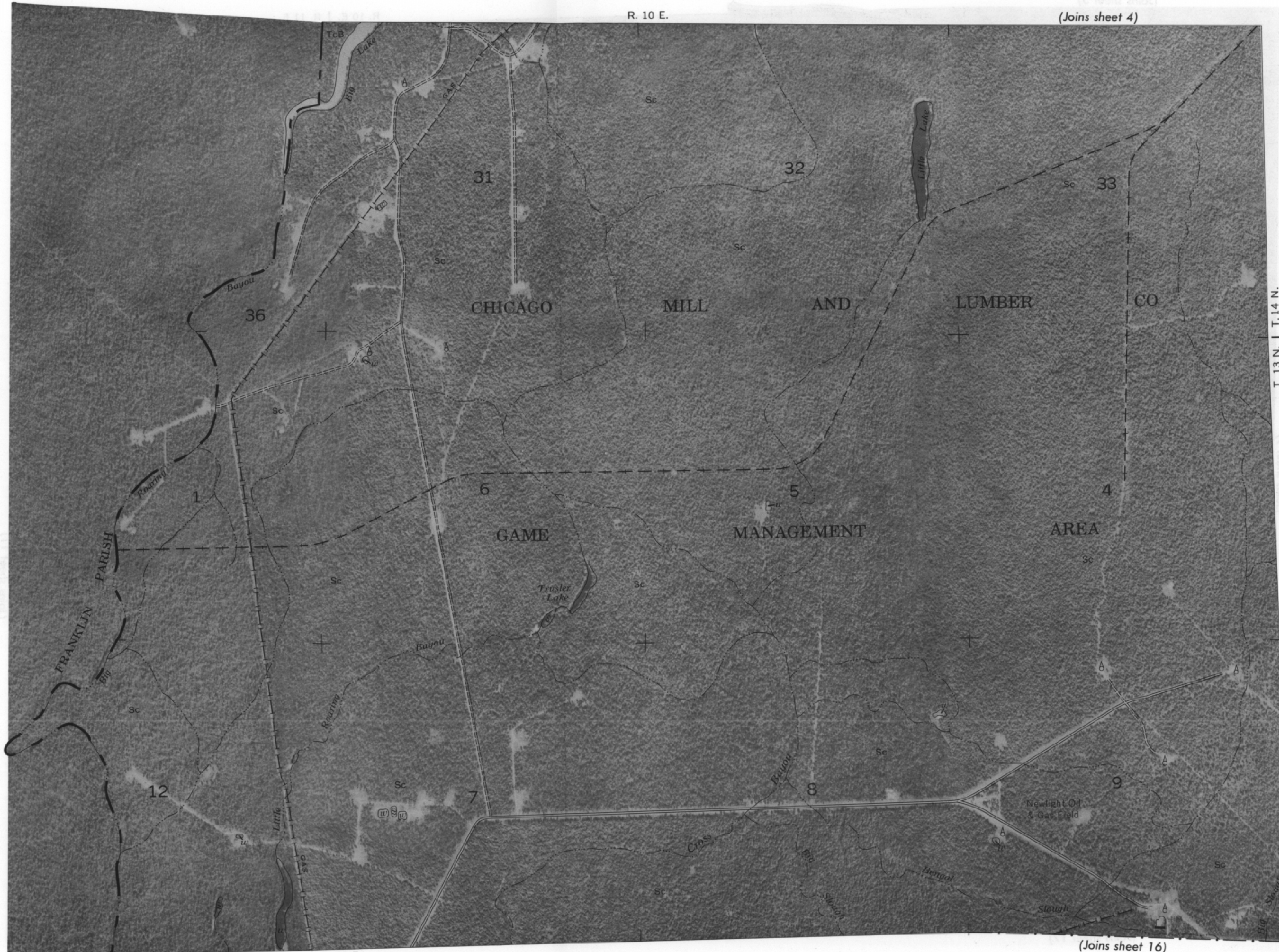
0 5000 Feet

This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.
Land division corners are approximately positioned on this map.

TENSAS PARISH, LOUISIANA NO. 7


8
R. 12 E. | R. 13 E.
T. 14 N.
(Joins sheet 2)
(Joins sheet 7)
(Joins inset, sheet 14)
(Joins sheet 13)
N
GRASSY LAKE
Duck Lake
BORROW PIT
FLOODGATE
SOMERSET
PALMYRA LAKE
MISSISSIPPI
WARREN COUNTY
MISSOURI PACIFIC
Water
0 ½ 1 Mile
0 5000 Feet

9



0 ½ 1 Mile

0 5000 Feet

This map is one of a set compiled in 1966 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Louisiana Agricultural Experiment Station.

Land division corners are approximately positioned on this map.

TENSAS PARISH, LOUISIANA NO. 9

SOIL LEGEND

The first capital letter is the initial one of the soil name. A second capital letter, A, B, C, or D, shows the slope. Most symbols without a slope letter are for nearly level soils.

SYMBOL	NAME
AcA	Alligator clay, 0 to 1 percent slopes
AgB	Alligator clay, gently undulating
AgD	Alligator clay, undulating
BaA	Bruin silt loam, 0 to 1 percent slopes
BaB	Bruin silt loam, 1 to 3 percent slopes
BmB	Bruin–Mhoon complex, gently undulating
BrC	Bruin–Robinsonville–Crevasse complex, undulating
ChC	Clayey alluvial land and Sharkey clay, overflow, 0 to 5 percent slopes
CmA	Commerce silt loam, 0 to 1 percent slopes
CmB	Commerce silt loam, 1 to 3 percent slopes
CnA	Commerce silty clay loam, 0 to 1 percent slopes
CoB	Commerce silty clay loam, gently undulating
CrD	Crevasse fine sand, 0 to 8 percent slopes
CsD	Crevasse fine sand, overflow, 0 to 8 percent slopes
Dd	Dundee silt loam
De	Dundee silty clay loam
DgD	Dundee–Goldman–Tensas complex, undulating
DtB	Dundee–Tensas–Goldman complex, gently undulating
LrC	Loamy alluvial land and Robinsonville soils, overflow, 0 to 5 percent slopes
Mh	Mhoon silt loam
Mo	Mhoon silty clay loam
NcA	Newellton clay, 0 to 1 percent slopes
NcC	Newellton clay, 1 to 5 percent slopes
NeB	Newellton silty clay loam, 1 to 3 percent slopes
NtC	Newellton–Commerce–Tunica complex, undulating
NuB	Newellton–Mhoon silty clay loams, gently undulating
NyC	Newellton–Sharkey clays, undulating
Ow	Oil–waste land
RbC	Robinsonville very fine sandy loam, 1 to 5 percent slopes
Sc	Sharkey clay
Sf	Sharkey clay, overflow
So	Sharkey silt loam
Ss	Sharkey silty clay loam
Ta	Tensas silty clay
Tb	Tensas silty clay loam
TcB	Tensas–Alligator clays, gently undulating
TcD	Tensas–Alligator clays, undulating
TdB	Tensas–Alligator–Dundee complex, gently undulating
TdD	Tensas–Alligator–Dundee complex, undulating
Tu	Tunica clay

CONVENTIONAL SIGNS

WORKS AND STRUCTURES

Highways and roads
- Dual
- Good motor
- Poor motor
- Trail

Highway markers
- National Interstate
- U. S.
- State or county

Railroads
- Single track
- Multiple track
- Abandoned

Bridges and crossings
- Road
- Trail, foot
- Railroad
- Ferry (FY)
- Ford (FORD)
- Grade
- R. R. over
- R. R. under

Buildings
- School
- Church
- Cotton gin
- Sawmill

Mines and Quarries

Indian mound

Pits, gravel or other

Power line

Pipeline

Cemetery

Dams

Levee

Tanks

Well, oil or gas

BOUNDARIES

- National or state
- Parish
- Reservation
- Land grant
- Small park, cemetery, airport
- Land division corners

DRAINAGE

Streams, double-line
- Perennial
- Intermittent

Streams, single-line
- Perennial
- Intermittent
  - Crossable with tillage implements
  - Not crossable with tillage implements
- Unclassified

Canals and ditches (CANAL)

Lakes and ponds
- Perennial (water, w)
- Intermittent

Wells, water (flowing)

Spring

Marsh or swamp

Wet spot

Alluvial fan

Drainage end

RELIEF

Escarpments
- Bedrock
- Other

Prominent peak

Depressions (Large, Small)
- Crossable with tillage implements
- Not crossable with tillage implements
- Contains water most of the time

SOIL SURVEY DATA

- Soil boundary and symbol (Dx)
- Gravel
- Stony, very stony
- Rock outcrops
- Chert fragments
- Clay spot
- Sand spot
- Gumbo or scabby spot
- Made land
- Severely eroded spot
- Blowout, wind erosion
- Gully

Soil map constructed 1967 by Cartographic Division, Soil Conservation Service, USDA, from 1964 aerial photographs. Controlled mosaic based on Louisiana plane coordinate system, north zone, Lambert conformal conic projection, 1927 North American datum.